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Railway Age

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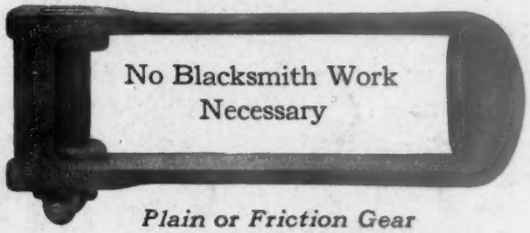

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IN the Janney Vertical Key Yoke, we have provided for a central pull on the yoke, as well as for lateral, vertical and torsional play of the coupler shank, thus relieving the yoke of all unnecessary strains.

¶ The vertical key is in double shear and the stresses are in direct line with the straps of the yoke at all times.

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¶ The Janney Vertical Key Yoke provides for the continued use of couplers which are otherwise unserviceable on account of worn rivet holes and transverse slots.

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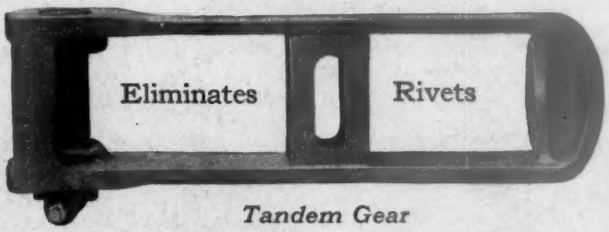

Tandem Gear

American Steel Foundries

NEW YORK CHICAGO ST. LOUIS

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"ACCO" CHAIN *for* *Material Handling*

The advantages of cranes, derricks and dredges, etc., as labor saving devices have become well recognized and the benefits derived from their use have led to their wide application in railroad yards and shops.

But it must not be overlooked that their efficient operation depends in a large measure on the chain used. The chain becomes the important link between the power end and the work accomplished.

"Acco" chains are deservedly classified as safety chains, they not only protect and safeguard life and the materials handled but more —they assure continued, uninterrupted operation of your labor saving devices.

"Acco" chain removes the thought of danger—and inspires confidence in the workman's mind.

Link "Acco" chain with every shop operation because every link of "Acco" chain will hold for its intended purpose.

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EDITORIAL
Railway Age

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Why Not Sell Necessary Service at a Profit?

THE NECESSITY of the service of railroads and other public utilities constitutes today one of the greatest menaces to their prosperity and development.

To say the fact that people have to buy a service whether they want to or not is a source of great danger to the concerns that render it, may sound like a paradox, but it is not one. First, the public necessity for their service is the real foundation upon which all special regulation of railroads and public utilities is based. Secondly, *the fact that their service is necessary unquestionably is the main reason why adequate and effective means of "selling" these concerns to the public are not adopted by the managements of most of them.* Now, this peculiar form of regulation, and this conspicuous failure of the managements of most railroads and public utilities to "sell" them right, are the main causes of their most serious troubles.

The man who makes kodaks, chewing gum, automobiles, or millinery knows that if his business is to be successful he must give relatively as much attention to salesmanship as to production, because his commodity is not one which the public absolutely must buy. Therefore, he carries on his sales campaigns with the object of so popularizing his product, in spite of the fact that it is a non-essential, as both to create a large demand for it and to enable him to secure prices for it which will yield him a large profit.

Why make similar efforts and expenditures to sell to the public services such as railway transportation, which the public will have to buy anyway? Because, unless these necessary services are sold to the public in the right way they cannot and will not be sold at a satisfactory profit, no matter how much of them may be sold. The public itself, through commissions, fixes the prices that it pays for railroad service. It will never so fix the prices it pays that they will yield a reasonable profit to the railroads as a whole, unless, first, it is "sold" the belief that the service is economically and efficiently rendered, and, secondly, that it is to the public's interest to pay rates that will yield the railways as a whole reasonable profits.

We have said that the public fixes the prices it will pay. Here is a fact of vital importance which is constantly overlooked by many managements. The railways, collectively and individually, are well organized and equipped to present their cases to lawmakers, commissions and courts. In other words, they are well organized and equipped to "sell" the lawmakers, commissions and courts. It is a well-known fact, however, that over and over again they convince lawmakers, commissions and courts that certain policies should be adopted, and that in spite of this directly contrary policies are adopted. Why? Because the lawmakers, commissions and courts have been "sold" the policies in question, but the public has not been, and it is public sentiment that finally determines the policies actually adopted.

It is essential to have the case of the railroads fully and ably presented to lawmakers, commissions and courts. But this has been done for many years, and in spite of this railroad net return and railroad development have steadily declined. Why? Because with respect to railroad regulation it is practically useless to convince lawmakers, commissions, and even courts of anything of which the public also is not convinced.

If there is anything regarding the railroad business which should now, after the experience of the last 15 years, be perfectly plain, it is that "selling" the railroads to the public is just as essential a part of successful railroad management as the running of trains, the maintenance of equipment and tracks, the keeping of the books, or the presenting of testimony to commissions and courts. It is equally plain that the public relations work of the railways as a whole and of most individual railways has not been adequately done. If it had been, the railroad history of recent years and the present railroad situation would be very different. It ought to be equally plain that public relations work cannot be successfully done without adequate organizations for that purpose, composed of competent men devoting their thought, time and energies to it, any more than the railroads could be successfully operated and maintained without adequate organizations and competent men devoting themselves exclusively to operation and maintenance. Furthermore, public relations work cannot be successfully done without expenditures proportionate to the purposes sought to be accomplished any more than any other branch of railroad operation can be successfully carried on without expenditures proportionate to the importance of the ends to be attained.

A number of railways have established what are virtually

public relations departments, although not always so called, and by adopting various means to present all the facts about their achievements, their operations, and the necessities of their business to the public have accomplished a great deal in the way of selling to the public not merely their service but the railways themselves as useful and beneficent institutions. Every important railway system of the country ought to be doing the same thing, not merely in its own selfish interest, but in the interest of the public as well. It is as much to the interest of the public as to the railways that the public should be made to see the railroads and their managements as they are instead of as they are painted by their enemies.

The very fact that railroad service is a necessity to the public will always be a liability instead of an asset to the railroads themselves, until the railroads learn to sell their service in such a way as to convince the public that their service is a great benefit to the public for which the public should be glad to pay reasonable rates, instead of letting a large part of the public continue to feel that railroad service is an incubus which they must bear, but for which they should insist upon paying the very least that they can legally force the railways to accept.

Business Is Reviving

Reports from the industries show that business is picking up all along the line and the indications are for a continued improvement, although not in the nature of a spectacular increase. The revenue freight car loadings for the week ending February 18 are again most favorable, as will be noted from the article and diagram on another page. For the weeks ending February 11 and 18 the revenue freight car loadings have surpassed those for the corresponding weeks in previous years. The most significant fact about these increased loadings is that the increases, as compared with the last year, are shown in all districts and in all but a very few classes of materials.

Railroad Telephone Economies

The extended use of long distance telephone circuits for other than train dispatching service is resulting in extensive economies on a number of railroads. The primary function of the telephone is to facilitate the transaction of business between different departments or with the general public. The justification for the extension of this service to long distance telephone communication between general and divisional headquarters depends on the amount of money now spent for toll on commercial lines. An article published elsewhere in this issue describes how one large railroad system is saving over $52,000 a year by owning and operating its own long distance telephone circuit between New York and Chicago. No doubt many other roads are losing money by delaying similar installations of telephone facilities. It would therefore seem advisable wherever telephone toll payments are at all important for railroad officers to check their expenditures for communication service as compared with the cost of providing their own telephone systems.

Keep the Pace Up

During the first two months of this year more freight cars were ordered for domestic use than during the entire year 1921. True, only 23,346 cars were ordered last year, while the number ordered during January and February this year—24,031—is at a rate which might reasonably be expected under normal conditions—a rate, however, which makes no allowance for the shortage of equipment which was so marked when business was at its height. General business is growing slowly but steadily. The public seems to be gaining renewed confidence in the administration of the railways. With the increase in business, this ought to be reflected in greater confidence in railroad securities which will put the roads in a position to order more and more in the way of equipment and facilities. Secretary of Commerce Hoover's statement that the cost to the public of a marked transportation shortage can be calculated in the neighborhood of a billion dollars, should also influence the ordering of equipment wherever possible. It is quite likely, therefore, that the remaining ten months of the year will develop equipment orders in even greater proportion than during the past two months. It is significant also to note that 70 per cent more passenger cars were ordered during January and February than during the entire year 1921, 420 cars being ordered for domestic use for the two months this year as against 246 for the twelve months last year. Welcome as these orders have been, the roads will undoubtedly order at a faster rate if improved business conditions warrant so doing.

A Fair Bid for Employees' Assistance

A suitable award of cash will be made to any employee offering a suggestion which results in economies or increased efficiency and any saving so effected the company will use in giving employment to more men—this is the gist of the proposal recently made by the management of the Buffalo, Rochester & Pittsburgh to its employees. The fairness of such a plan is manifest. Economies effected at the instance of employees will benefit everyone concerned—the man making the suggestion, the company and the additional men thus given employment. The company has organized a "suggestion bureau" to consider the proposals made by the employees. To make sure that prejudice or discrimination do not enter into this bureau's decisions, all suggestions will be submitted to it by serial number only, with no hint concerning the identity of the author. This move by the Buffalo, Rochester & Pittsburgh sounds promising. Almost every intelligent railroad employee has ideas concerning the operation of his road. The great difficulty has always been to get him to make these ideas known to someone in authority. The offer of a cash prize together with the assurance that savings effected will be used in giving employment to his idle fellow-workmen should provide sufficient incentive to overcome this reticence. If the plan proves a success its adoption will doubtless be widespread. Naturally a report on the results accomplished after the bureau's work is well under way will be of great interest.

Railway Shop Production

It is difficult, if not impossible, to say anything new about the need for better organized railway shops and more efficient utilization of shop equipment and manpower. The need is so great, however, that the presentation of new evidence and the restatement of old facts is justified on the ground that eventually a general realization of mechanical department needs will be followed by active steps to improve conditions. Manufacturers throughout the country are examining costs with a critical eye and bending every effort to economize in

labor and material so far as may be consistent with standard, reliable products. Are railroad shops also prepared to turn out cars and locomotives in a minimum time and at the least cost consistent with good quality work? Unfortunately the answer is no. A railroad expert on shop conditions recently said "At the present time I am afraid that the railway shops do not turn out work as quickly as would be done by up-to-date manufacturing concerns." If this statement is true, and it can hardly be denied, two questions immediately arise. What is the reason? What is the remedy? Without going into an involved discussion of the case, shop output per man is dependent upon the attitude of shopmen towards their work, the machinery provided for doing that work, and the methods of scheduling and performing detailed operations. These three all-important factors must receive prompt consideration and action by officers in charge if mechanical departments are to play their part in increasing the spread between railway operating revenues and expenses.

Training Men for Promotion

One of the old established machine tool manufacturers in New England recently published a list of men who had completed the apprentice training course in the company's shops. The primary object of the course is to develop skilled mechanics, but few of the men are now working at their trades. Their present occupations show that a large proportion have risen to positions of responsibility. Many have become foremen, others are superintendents or general managers, and the list, although short, contains the names of a number of presidents and vice-presidents of important companies. Why have so many of these men made successes in life? There seems but one valid conclusion; the training they received fitted them for managerial positions. Certainly there is a lesson in this for the railroads. There is hardly a road that can find among its employees enough of the right kind of men to fill the vacancies that occur among the officers. Despite this fact, little is done to train the younger employees. Apprentice training that is more than mere time serving has almost disappeared from the railroad shops. How many roads have taken advantage of the new rules that provide for special apprentices? A large railroad system is probably the most complex business institution on earth. It requires many highly skilled leaders to make it operate efficiently. Some good men may develop by chance, but this is not enough. There should be always available in every department men who have a thorough understanding of railroad work that will fit them to assume supervisory positions. The type of man formerly so common, who had a broad knowledge gained by working in various positions is almost unknown at present. The railroads need such men. They can be had only if the railroads will set out deliberately to train them.

Construction to Meet Competition

TO WHAT EXTENT is a railway justified in reducing grades and otherwise improving its facilities to lower its costs of operation in order to compete for and secure traffic from another line already equipped to handle this business with equal or greater economy? This may seem like an academic question, but it is one which is being raised on more than one road today.

Prior to the passage of the Transportation Act of 1920 it was the duty of a railway management to improve and operate its property so as to earn for the stockholders the largest net return consistent with the rendering of adequate service to the public without regard to the effect of this competition on other lines. In general this responsibility is still the same, but the provisions of the Transportation Act relative to authorizations for new expenditures, grouping the roads into systems, etc., indicate the trend of public regulation toward less active competition and increased unity of operation. Theoretically traffic should be concentrated upon those lines which can handle it most economically and the facilities of these lines should be increased as necessary to enable them to keep pace with the growth of business. Also, the public has an interest in the expenditures which the railways make because of the provision in the Act that the roads shall be permitted to earn a return upon these expenditures. It is therefore interested in the elimination of unnecessary or competitive construction.

On the other hand, the railway system of America has been developed under the stress of active competition, and it has been the hope of increased earnings that has led railway managements to venture large sums for improvement work. Such improvements will be made only if there is a chance to secure the business necessary to earn a return on the investment. Since rates between common points are the same, the roads can compete for traffic only upon the basis of the service which they render and this service reacts to the benefit of the shipper. That the shippers desire competition was demonstrated by their clamor for the return of the railways to private control, following their unified operation by the government.

The expenditure for the enforcement of a competitive line to enable it to handle economically, traffic which it must develop, involves a waste in investment in whole or in part until such time as the traffic taxes the capacity of both lines. However, competition necessarily leads to waste in numerous forms of which this is but one. It is, however, the stimulus to improvements in service and economy in operation which has made the American transportation system the leader of the world. Therefore, while the Transportation Act throws new restrictions around improvement work, it modifies the responsibility of the managements with respect to expenditures for improvements only to the extent that it acts as a curb against reckless investment.

Increase in Total Tractive Power and Car Capacity

IT REPEATEDLY has been shown that the number of locomotives, freight cars and passenger cars acquired by the railways has been declining for some years and that the increase in their number has not kept pace with the growth of traffic. Attempts have been made, however, to show that there has been no ominous decline in the growth of the capacity of the equipment, because, as has been pointed out, year by year there has been an increase in the average tractive power of locomotives and in the average capacity of freight cars. For example, the following statements were made in the weekly news letter of the American Farm Bureau Federation for February 16 in a report of the rate hearings now being conducted by the Interstate Commerce Commission:

> Much has been said about the railroads failing to keep up their facilities of recent years. We have been told about the increase in the number of engines and cars not being sufficient. While it is true that in 1920 (the latest year available) there were approximately only 18 per cent more engines in number than in 1908, Clifford Thorne finds that the tractive power had increased 661 per cent. (This figure evidently is a typographical error.) While the total number of (freight) cars in 1920 exceeded those in 1908 by only 13 per cent, the capacity of the cars in 1920 was 37 per cent greater than in 1908. In other words, these statements about increased facilities totally ignore the larger size of the cars and engines.

It is not true that the statements made by witnesses for the railways to the Interstate Commerce Commission have ignored the larger size of the engines and cars. The increases in the average tractive power of locomotives and the average capacity of freight cars have been specifically mentioned, but it has been pointed out that these increases in average power and capacity have been going on steadily for many

years, and that therefore the reduction in recent years in the amount of equipment acquired represents also a reduction of the increase in the total capacity of the equipment.

Shippers should be fully and correctly informed regarding the facts, for they are even more vitally concerned than the railways. What, then, are the facts regarding the increases which have occurred within recent years and in former years in the aggregate tractive power of locomotives and the aggregate capacity of freight cars?

The statistics of the Interstate Commerce Commission make possible comparisons for the years from 1902 to 1920, inclusive. When these years are divided into two periods of nine years each, and the statistics for the two periods are compared, the facts disclosed are striking and even startling. In both these periods there were very large increases in freight and passenger traffic. In both of them there were years when there were acute congestions of traffic and large shortages of cars. Only in the middle of the first period, however, did drastic regulation of the railways become effective, and it was a period when relatively large net returns were earned. On the other hand, in the second period the railways were either subject to extremely effective regulation, or under government operation, and the net returns earned by them were sharply reduced.

The increase in freight business in the first period was 61 per cent and in passenger business 69 per cent. The increase in freight business in the second period was 62 per cent—almost exactly the same relatively as in the earlier period—and the increase in passenger business 41 per cent.

Bearing in mind that the increases in freight business in the two periods were relatively almost exactly the same, what were the comparative increases in the total tractive power of locomotives and the total capacity of freight cars?

In 1902 the total tractive power of locomotives was 770,000,000 pounds. In 1911 it was 1,714,000,000 pounds, an increase of 122 per cent. This seems like a very large increase, but it should be remembered that developments in 1905, 1906 and 1907 showed that the tractive power of the railways was very inadequate, and this large increase in it was made to remedy the inadequacy. In the nine years ending with 1920, the total tractive power increased to 2,337,000,000 pounds, or 36 per cent. In other words, although the increase in freight business was relatively as great in the second period as in the first, the increase in total tractive power was relatively only one-third as great.

In 1902 the total capacity of the freight cars in service was 42,168,000 tons, and in 1911 it was 81,227,000 tons, an increase of 92½ per cent. This large increase in the total capacity of cars was due to the same experience that caused the large increase in the total tractive power of locomotives. In 1920 the total capacity of freight cars was 98,000,000 tons, an increase over 1911 of only 21 per cent. In other words, the increase in it was relatively less than one-fourth as great as in the preceding nine years, although the increase in the freight business handled was relatively as great.

Certainly these figures show a significant decline of the increase in total tractive power and car capacity. It is necessary, however, to present and study the facts in more detail in order to grasp their full significance. The accompanying table gives the statistics regarding the total tractive power of locomotives and the total capacity of freight cars by three-year periods.

It will be noted that the increase in the tractive power of locomotives was the greatest in 1902-1905, and that it steadily declined from that time until the three-year period ended with 1917. It then advanced, but never again became as great as in the three years ending with 1905.

The increase in the total capacity of freight cars was very large in the three years ending with 1905, and even larger in the three years ending with 1908. Since then it has steadily and rapidly declined. In the three years ending with 1920 the increase in total freight car capacity was less than one-fourth as great as in the three years ending with 1908.

The railways were able to cope with the 62 per cent increase in freight business that occurred between 1911 and 1920 largely because of the great increases in the total tractive power of locomotives and the total capacity of freight cars and other facilities which occurred prior to 1911 Unless the experience of the future is to be entirely different from all our experience in the past they will be offered within a few years a freight business exceeding that of the years 1911 to 1920 as much as the freight business of 1911 to 1920 exceeded that of 1902 to 1911. For over ten years they have been increasing the amount of business handled by them far more relatively than they have been increasing their capacity. The experience of the years 1917, 1918 and 1920 shows that considering the railways as a single system, they had in those years very little surplus capacity left. How, then, is the future increase in the business of the country to be handled unless there is an increase in railway facilities as large in proportion as the increase in traffic? How is this increase in facilities to be made unless the railways are allowed to earn a much larger average net return than they earned in the years during which, as the statistics herewith presented show, their expansion was steadily declining?

Year	Total tractive power locomotives, pounds	Total capacity freight cars, tons
1902	770,000,000	42,168,000
1905	1,128,000,000	53,556,000
Increase 3 years	358,000,000	11,388,000
1905	1,128,000,000	53,556,000
1908	1,458,000,000	72,980,000
Increase 3 years	330,000,000	19,424,000
1908	1,458,000,000	72,980,000
1911	1,714,000,000	81,227,000
Increase 3 years	256,000,000	8,247,000
1911	1,714,000,000	81,227,000
1914	1,887,000,000	90,700,000
Increase 3 years	173,000,000	9,473,000
1914	1,887,000,000	90,700,000
1917	2,088,000,000	95,467,000
Increase 3 years	201,000,000	4,767,000
1917	2,088,000,000	95,467,000
1920	2,337,000,000	98,020,000
Increase 3 years	249,000,000	2,553,000

The very persons who are now trying to show that there has been no serious decline in the development of the railways will be the first to denounce their managements for inefficiency if, when business revives, the railways are unable to move all the freight offered to them.

The Latest Scheme for Pooling Cars

WHEN AN ORGANIZATION with a standing before the public such as that of the National Association of Owners of Railroad Securities proposes to save the railroads $300,000,000 a year, the railroads cannot afford to let the proposal pass without subjecting it to critical analysis. If the result of such an analysis indicates that the plan actually offers large possibilities for effecting savings which the railroads cannot themselves effect, certainly they cannot afford to lose the opportunity it offers. If on the other hand the plan possesses inherent weaknesses likely to result in its failure, or if the same difficulties stand in the way of obtaining the economies claimed that prevent the railroads from obtaining these economies themselves, then these facts should be clearly set forth before the public to offset as far as possible the presumption against the railroads always created in the public mind by each reformer with a new million dollar

a day program for saving the railroads from themselves.

Large reductions can no doubt be made in the expenditures of the railroads for car service by improvements in maintenance conditions, by the retirement of obsolete and outworn equipment and by increased car utilization. Some of these savings the railroads have already demonstrated their ability to realize under existing conditions; a high degree of effectiveness in car utilization was attained in 1920. Others could be realized if the necessary capital were available and the financial condition of the roads were such that they could safely undertake the outlay for shop improvements and equipment replacements. Still other savings will be possible when there is a wider appreciation of the fact that 20 empty car miles costs as much as a day's rental.

But these savings would probably fall far short of $300,000,000 a year. Would the National Railway Service Corporation be able to make good its estimate? Consideration of the various items of the estimate in the report of the Board of Economics and Engineering indicates that some of the conclusions are based on data too general to be conclusive and others are matters of opinion apparently unsupported by tangible evidence.

The saving of $33,000,000 a year in the first cost of equipment is contingent on complete standardization and uniform buying irrespective of business conditions. The matter of standardization, however, is surrounded by many difficulties and many of the questions to be settled are likely to prove highly controversial. For instance, shall future construction be of the all-steel or composite type; and at just what point shall a compromise be arrived at between the adherents to cars of great strength and those who believe in minimum weight? If the benefit of steady production is to be obtained, what will be the source of the fund from which purchases can be made during periods of business depression when the available surplus of the roads may be too small to stand the strain?

The estimate of the Board indicating a saving of 20 per cent in the cost of heavy repairs, amounting to $30,000,000 a year, is not entirely consistent. Quantity production methods are to be introduced through a reduction in the number of points at which general repairs are made, but the equipment is to be sent to these plants irrespective of ownership. Many railroads have already availed themselves of the opportunity for saving through the employment of quantity production methods by contracting out their heavy repairs. These benefits have been obtained by aggregating large numbers of cars of a single series in order that each car may be subjected to identical operations, and even though wrong repairs were permitted, much of the benefit of production methods would be lost unless such a segregation were made. Furthermore, the plan contemplates the establishment of shops at large traffic centers, involving considerable capital outlay before it could become effective.

The largest single item in the estimate is the annual saving over a ten-year period of approximately $96,000,000 a year to be effected by retiring 890,000 small capacity cars of all-wood construction and replacing them within a period of five years with 540,000 steel underframe cars of 50-ton capacity. During the year ending December 31, 1918, there were 524,000 wood box cars and 182,000 coal cars of all wood construction in service on Class I roads. Many of the box cars have undoubtedly already received reinforcement or are suitable for reinforcements which convert them into satisfactory service units. Of the wood coal cars a large number are undoubtedly employed in company service and do not enter into interchange. It is doubtful whether more than half of the 890,000 cars referred to in the report would prove to be subjects for replacement by the corporation. But assuming that the entire number were to be replaced with cars of the increased capacity, would 540,000 of the larger cars be capable of rendering the same service? During 1920 the average carload was 29.4 tons, but considering the fact that open top cars on the average are loaded close to capacity, the average box car load probably did not exceed 22 tons, with an average capacity of approximately 37 tons. Is it probable that an increase in unit capacity is likely to be followed by a proportional increase in the average box car load? The answer to this question has an important bearing on the saving through the retirement of weak cars, since $65,000,000 per year of the total is claimed for the lesser amount of car mileage in handling an equal volume of traffic in a small number of larger capacity modern cars.

A saving of $66,000,000 per annum is claimed for the increase in ton-miles per car per day, assuming an increase from 506 obtained in September and October, 1916, to 528. But the railroads, with the assistance of existing agencies, have already demonstrated their ability to exceed this figure for a period of four months in 1920.

Altogether the detailed estimate presented by the Board totals $257,000,000. Just how the additional $43,000,000 to make the round sum of $300,000,000 a year is arrived at the report does not say.

The present accumulation of more than 300,000 bad order cars is the result of one of the most drastic retrenchments in the railroad history. The plan of the National Association of Owners of Railroad Securities proposes that its National Railway Service Corporation immediately arrange for the repair or rebuilding of these cars, a project involving an outlay of at least $45,000,000 to $60,000,000. This work will be done for the account of the owners. But if the owners have found themselves unable to undertake it under present business conditions, how will the $45,000,000 to $60,000,000 bills be paid?

There are many attractive features in the Association's proposal and the *Railway Age* has no desire to discredit it. To say the least, however, there is a reasonable doubt that the plan, if adopted, will effect a saving approaching $300,000,000 a year, certainly not immediately. In promising such enormous savings some of which are based on nothing more tangible than opinion evidence, the Association is doing the railroads and their security owners a poor service. In the present state of public opinion if the plan should be dropped, no matter how good the reason, the railroads will stand charged with mismanagement for not adopting it, even though there are good reasons for not adopting it. Should the plan ultimately be adopted, nothing less than $300,000,000 a year will be accepted by the public. In either case it is not clear just how the inevitable disappointment will serve the best interests of the owners of railway securities. The plan is not one to be placed before the public in terms of glittering generalities but must be subjected to the most careful and detailed analysis by competent railroad officers.

THE SOUTHERN RAILWAY announces round-trip tourist rates to mountain and seashore resorts for the coming summer season at 80 per cent of the double one-way fares. For example, where the one-way fare is $10, the round-trip rates this summer will be $16. Last year it would have been $18 plus $1.44 war tax.

IN THE NEW ENGLAND FREIGHT-RATE decision the Interstate Commerce Commission holds that our railroads constitute a national transportation system, whose parts must be maintained if they are not to be abandoned. In the undirected, free processes of trade are developed slowly a solidarity and integration that socialize local or temporary advantages which bear disadvantageously on individuals or localities without compensating advantages to society as a whole. As business becomes more of a regular operation in the performance of service and less of a private speculation the integration that goes on reappraises local advantages and disabilities in the interest of the whole process.—*J. Shirley Eaton.*

Letters to the Editor

[*The* RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about* 250 *words—are particularly appreciated.*]

The Lowest Bidder

SHREVEPORT, LA.

TO THE EDITOR:

I have read, with interest, your editorial of December 10, entitled "Should the Low Bidder Get the Work?" and I agree with you in all that you say.

As an engineer with some years of experience, I have advocated the rejection of "the lowest bid" in cases where it was apparent that the work could not be successfully carried out at the price bid, even though the certified check and surety bond were satisfactory.

I can cite you to more than one case where the "lowest bid" was accepted, and where the final cost to the owner was greater than if the "highest bid" had been taken, to say nothing of poor workmanship that sometimes goes with a job that costs the contractor more than he is receiving, although the efforts of the supervising engineer and his assistants have been all that they could be.

LINTON W. STUBBS.

Give the Facts to the Public

LOUISIANA.

TO THE EDITOR:

I meet many intelligent people whose ideas on most matters are sound, but on account of the camouflage indulged in by the labor agitator and Ford, now believe that all roads are over-capitalized, and all except the D., T. & I. are mismanaged.

It is not uncommon to see in our daily press statements about the roads that are absolutely at variance with the facts. Should not concerted action by our railroad executives be taken to counteract the evil effect already produced by the publicity that has been given to many statements absolutely untrue, and which has greatly affected the attitude of the public toward the railroads? At this time, when the railroad situation is a very live topic, should not every reasonable effort be made to show to the public plainly what the conditions are? ANOTHER RAILROAD STUDENT.

Religion Required in Railroading

READING, Pa.

TO THE EDITOR:

In your issue of February 18 "Train Dispatcher" asks, "Will religion and railroading mix?"

To my mind, even an expression of doubt on this subject is a sad reflection upon the code of morals of railroad men as a body. In answer I quote from a Pennsylvania Railroad man in The Mutual Magazine of January, 1922,—a publication issued by employees of that road: "The real nature of all the serious problems of the day is spiritual, and their outward or material aspects are the result of ignoring divine law in human relationships."

The writer believes religion and railroading *will* mix—eventually; or there never will be peace and harmony. For, not only the Christian religion, but all others, enjoin strict justice and fair dealing, and condemn selfishness, greed and so-called sharp practice in all transactions between man and man, either as individuals or in brotherhoods, associations or groups of men.

Only when the rules and conduct of brotherhoods and corporations conform to the precepts of religion will a secure basis be found for a permanent peace on the railroads, or between nations, or in any other human relationship. Make no mistake—not the will of labor, nor the will of capital, nor yet the will of labor boards, commissions or congress, but the will of God must finally and eternally govern the world, including the railroads. Wouldn't it be wise to get on the right side now and begin early to practice the principles that must finally prevail? Every railroader, officer or employee who is doing otherwise is violating the divine book of rules and running without orders. CLERK.

Meetings With Trainmen; Compulsory Attendance

DETROIT, Mich.

TO THE EDITOR:

To the railroader who has been watching things from the inside for 35 years the various letters and other articles concerning safety of train movement which have recently been published call to mind the fact that there are many old lessons which have still to be learned.

The general superintendent ought to get down off his throne, leave his fishing rod or gun to one side, and have a personal meeting with all of the conductors and enginemen at least once each month. Every conductor and engineman should be able to show that he has attended such meetings with reasonable regularity. These men sometimes have to attend meetings on two or more divisions so they cannot perhaps be held to the strictest account; but they ought to be required to attend at least four meetings a year.

At these meetings the hand of fellowship should be extended, and the men should be drilled into habits of safety; more than this, into habits of safety and of making time, both at the same time.

At one time we try to inculcate safety; at another time we emphasize the importance of making time; of economizing in the time of men and with the quantity of fuel used, etc. Why not try to teach the men along both of these lines?

J. T. HUFFMANN

Bringing the Best Out of Men

BEARDSTOWN, Ill.

TO THE EDITOR:

Just a few lines to emphasize what has been stated by others, especially the authors of "Big Stick vs. Golden Rule," in the *Railway Age* of November 26, 1921, and "The Golden Rule in Railway Work" in the issue of December 3.

Having taken treatment from several specialists during the last thirty years, I am still of the opinion that the mistake nowadays is in acting toward men very much as if they were animals. Most animals of the domestic type, in fact, receive pretty good treatment if they are in the least skilled. But even a dog tucks his tail between his legs and sneaks away when scolded, or else shows his teeth; a vicious animal, however, will easily respond to kindness. We have but to remember the old saying that soft words turn away wrath, but grievous words stir up anger.

In general, officers above the rank of division superintendent are of the fair sort, but subordinate officers seem to think they must make a big noise and nag and nag and scold, the good with the bad being subjects of their ever-

ready pens and tongues. The whole division is threatened because of the alleged failure of one or two.

If higher officers stand for this (and it rarely comes to the surface except through grievances of the men), then they are applying absent treatment—a thing that will never work to the good of the service. The sooner employers get back to the old way (if they ever knew it), the sooner we will get back to that thing we hear so much of nowadays—normalcy. If men are not trusted they will not respond to the full extent, but the pride most men have will, with proper treatment, call forth the very best.

ANOTHER OLD RAILROADER.

A Word of Suggestion to the Dictator

NEW YORK.

TO THE EDITOR:

The business of writing, like that of railroads, is to get there with the goods.

The writer is the transportation man, the reader is the consignee. It is important to discover the maximum economic load for a train of thought. This varies according to the character of the freight carried, the nature of the region served and the draw-bar pull of the idea that is to move the train of thought.

Too many heavy cars in the train of thought leads to a break-in-two. The best remedy for a break-in-two of this kind is to send out a flagman with a period and to couple up the rest of the train with a new engine.

It is important in passing switches to make sure that the rear end of the train of thought isn't left on a siding. This makes it difficult for the consignee to locate his goods.

It is bad practice to make up a train of thought exclusively of L.C.L.

A critter on the track that has been the cause of many derailments is "and which."

"As" is a very poor coupling and so is "—ing"; they have been the cause of many break-in-twos.

For a heavy train of thought "however" is a poor head engine; cut it in two or couple in three cars back for 100 per cent efficiency.

It is important that the train of thought should be supplied with side-cards indicating destination of its several members.

Transportation men should take care in handling infinitives not to split them. Some consignees object to receiving them in this condition.

F.

Say Good-bye to Old Mr. 31

DALLAS, TEXAS.

TO THE EDITOR:

I have read the several interesting articles in the *Railway Age* on Form 31 train order. I am sure that unless something is done soon to eliminate Form 31 it will eliminate itself. The present rules and attempted practices surrounding Form 31 have become obsolete; everybody knows that these rules and regulations are not in keeping with present day demands.

The saving in operating expense by avoiding unnecessary stopping of long freight trains would in itself amount to a large amount within a twelve-month period. The only reason we do not eliminate Form 31 at once is that we lack the nerve to take the forward step and accept the responsibility. It has ever been thus, with each advance movement in train dispatching.

I cannot believe that with Form 19 there will be more collisions resulting from misinterpretations, mishandling, or overlooked train orders than we are having now. If anything, the odds are in favor of the 19 Form on account of the manner in which it is handled. It should keep fireman and brakemen better informed concerning orders affecting movements of their train. Wireless telephony, in the near future, will afford means of communication between the train dispatcher and the train crew; then good-bye to old Mr. 31!

When trains are run by signal indications only, no signature is secured for passing either a "stop" or a "proceed" indication. I think any fair minded person will agree that there are more cases of disregarded signal indication (including false indications) than there are of misinterpreted train orders.

How would it do to revise the rules along the following lines?

Leave Rules 201, 202, 203 and 204 as they are;

To Rule 205 add a clause requiring dispatcher to record the time that the order is released for delivery;

Rule 206, no change;

Rule 207, eliminate reference to Form 31;

Rules 208 and 209, no change;

Rule 210, eliminate;

Rule 211, no change.

There will be certain other rules and regulations governing the issuance of clearance cards and their delivery. The train dispatcher should authorize clearances, giving them numbers over his initials and keeping a record in his order book. The operator should repeat and sign his name.

It is my suggestion that this subject be referred to the rules committee of the American Railway Association and let it be given some thought and study. If this is done the only logical outcome will be the abolition of Form 31 and the adoption of a present-day standard method of handling train orders.

W. M. WHITENTON,
Assistant Chief Operating Officer, Missouri, Kansas & Texas.

How a College Training Helps

TEXAS.

TO THE EDITOR:

The various letters and editorials regarding the college man in railroad work which have appeared in the *Railway Age* have been interesting to me because of my being a college man in railroad work. Perhaps some of my experiences, conclusions, and mistakes will be of interest.

I now know that I made two important mistakes during my apprenticeship. First, I was so deeply interested in the new experiences I was meeting that I didn't take time to make friends. Second, I argued technical matters with non-technical men and many times was made to appear ridiculous by having someone pass along my statements badly garbled.

I frankly confess that my advancement has been as rapid as my ability would permit. I wasn't the best student in my class and I am not the best man on the railroad. I have done better than the average man in my class and probably better than I would have done in any other industry, for I was born with the call of the rail in my blood. I have seen some good men fall down because of having advanced too rapidly.

My college training could not possibly have taught me the facts one must know or have given me the experience one must have in order to be a successful mechanical department officer but it has been especially valuable to me in the following ways: It taught me to read with understanding; to think straight and rapidly and to a definite conclusion; to make and appreciate clear and concise reports; to investigate fully before making a decision; to respect the feeling of other men; to know the other fellow's way may be just as good as mine; to take criticism without "blowing up" and to work in harmony with others.

Aside from vicious personal habits nearly every failure of a railroad officer to succeed may be traced to his lack

of training in one or more of the above points. These are the things a man has a chance to learn at college regardless of the studies he pursues and they are the things a man must learn to succeed in any industry. It is granted that they may be learned in the shop or office by experience, but the method is slow and very discouraging.

Prejudice against the college man is not confined to the railroad business. It exists in all branches of industry. However, it appears to be perhaps more pronounced in railroading than in other industries because of the fact that the knowledge which must be acquired by actual experience in the shop or on the road is more essential to success in railroading than is the knowledge acquired at college and this is not the case in most other industries. F. E. M.

Educating Railway Employees

CHICAGO.

TO THE EDITOR:

I read with a great deal of interest the article of C. G. Juneau, master car builder of the C. M. & St. P., in your issue of January 21, page 223. The thoughts expressed by him are of value to anyone interested in the education of railroad employees. However, he made one statement that I can hardly agree with. The same idea seems to be prevalent in the minds of many railroad men, especially those of the older school.

Mr. Juneau stated: "Unable to turn to educational institutions to provide a trained personnel to grapple with their problems, the railroads' one chance of resurrection seems to lie in their own education of their employees."

It is not quite clear what Mr. Juneau means by "education" in this sense. Obviously he does not refer to general education, but rather to specialized training. But in this sense it must be remembered that practically all of the personnel of the legal and engineering departments of a railroad is college trained. More than one-half of the official personnel of the mechanical department is college trained, while on some roads practically all the mechanical officers are graduates of technical schools.

Perhaps he does not know of the attempt made in the past on the part of the railroads to educate their own employees. There have been some very ambitious beginnings—that of the Harriman lines a few years ago being the most auspicious—but they all failed, except in the work of training apprentices in the mechanical department. The broader the plans, the greater the failure, and they failed for the reason that the function of a railroad company is to produce transportation. It is not to educate. A railroad is primarily a money-making plant and every moment of company time spent by an employee in learning the principles and details of his work represents a loss to the stockholders and a greater charge to the public. The only economic excuse that a railroad company has to engage in educational work is to prevent a greater loss because of the lack of knowledge and inefficiency of its employees. If it can find an outside agency to perform this function, it would be a financial waste for a railroad to attempt it.

Another reason for the failure of educational campaigns undertaken by the railroads themselves is the violation of a fundamental principle of education, i. e., that education must not be forced. There are no exceptions to this rule in the case of grown men and women. The pupils of a railroad educational campaign are men and women and while at first the educational opportunities may be accepted with a great deal of enthusiasm, especially by the ambitious, in the course of time the acquiring of knowledge of their duties will be accepted as a part of the job itself. What this means—what effect it will have on the enthusiasm of the students—Mr. Juneau well knows.

This does not agree with some authorities who believe that the education of the employee should be required rather than invited. True, such a procedure will produce some results, for it is well known that even a little education is better than none at all, but it will not produce the best results, which can only be obtained through voluntary action on the part of the student.

This has been the course of most railway educational campaigns. They were inaugurated with a burst of enthusiasm that burns itself out within a year or two. The attempt dies so slowly that no one notes its passing. No one seems to miss it. Then when an ambitious official grasps the need of an educational program, it is again resurrected as something original.

Mr. Juneau makes the same mistake that is made by a large number of railroad officers in regard to education. He believes education consists of a course of training in the specialized details of the work. Owing to the complexity and fluctuating character of railroad work, a course of education based on details would be of no value to the student soon after it was completed. If such a course was based on the practices of one road, it would be worse than useless on another road.

Technical education consists in acquiring skill in a certain trade or profession, or specialized work. It does not consist primarily in knowing how to do skillfully certain detailed jobs, but it means the possession of certain fundamental truths or principles which will enable the student to meet practical situations and contingencies as they arise. For instance, if a tariff clerk is familiar with the tariff files, he will understand how to locate the rates without making a study of every tariff file he comes in contact with. If a yardmaster knows the layout of a yard, the purpose of the different tracks and the uses to which they can be put, he can handle any yard after only a slight study of the local layout. If an agent at a small station understands the fundamentals of station work, he will have no difficulty in breaking in at a large station. A civil engineer is not taught how to solve individual engineering problems except as a means of understanding more thoroughly engineering principles. Thus education is fundamentally based on principles, and it is left to the student to apply these principles.

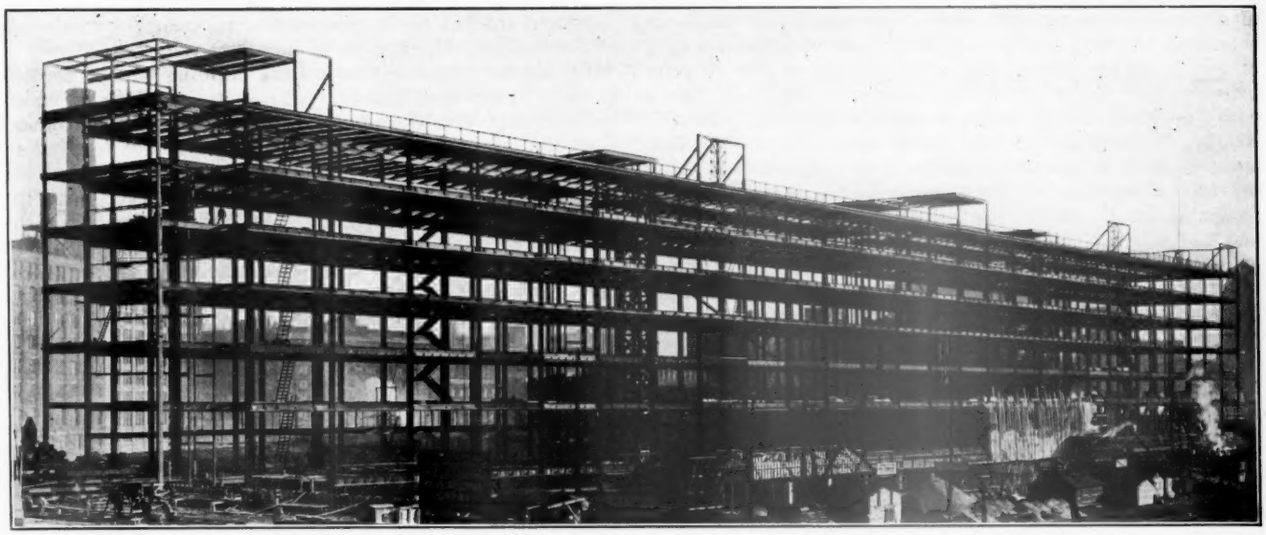
I agree with Mr. Juneau when he states that no educational institution can produce a railroad man. No one who knows anything at all about the business will even suggest that a man can learn the rules or principles of any department of the railroad, and then step out and compete successfully with an employee of a long and varied experience. But it is equally true that a man who learns the rules before the game begins is a much more valuable player than the man who has to be taught as the game proceeds.

CHARLES E. PARKES.

THE DELAWARE & HUDSON reports the number of employees killed (while on duty) in 1921, as 10, as compared with 19 in the preceding year; and of injured 744 as compared with 1,115. The safety department of that road was organized in 1918 and since then the diminution in the number of casualties among employees has shown a marked decrease. The number of employees killed, in all departments, was, for the four years, 40; 18; 19; 10: of injured, 1,615; 920; 1,115; 744. The casualties per million locomotive miles were as follows:

	1918	1919	1920	1921
Killed	2.9	1.5	1.4	0.9
Injured	116.1	78.4	80.9	67.1

In the transportation department the number of killed in 1921, per million locomotive miles, was 0.5 as compared with 2.1 in 1918; and of injured, 30.0 in 1921 as compared with 43.9 in 1918.



The Building Required 7,000 Tons of Structural Steel

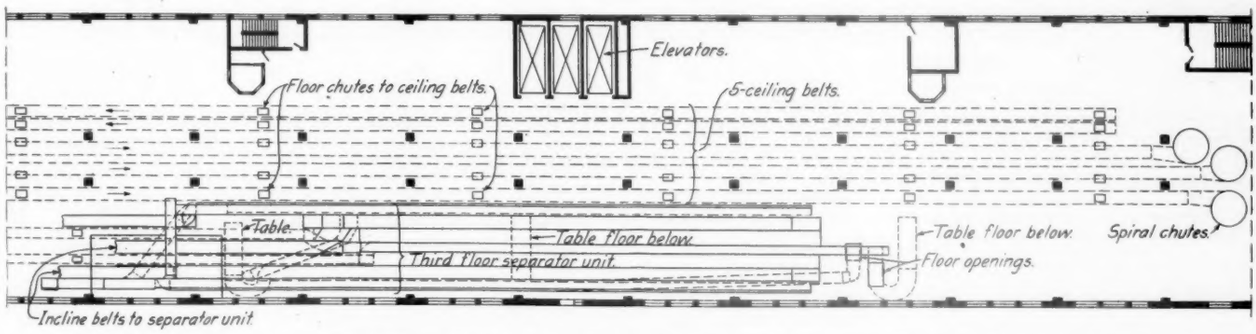
Railway Mail Terminal Will Handle Large Tonnage

Mechanical Transportation an Important Feature of New Union Station Structure at Chicago

THE LARGE railway mail terminal now being erected as a part of the Chicago Union station project* at a cost of $4,000,000 clearly demonstrates the tendency towards closer co-ordination of the postal service and railway transportation in the handling of mail. For many years, and particularly since the introduction of parcel post, the railway mail service has been operating under adverse conditions in Chicago in the form of facilities that are inadequate for the rapidly increasing volume of business. In 1919 a committee of the railway mail service with William I. Denning, then superintendent of the railway mail service, as chairman, made a thorough study of the operations and the necessary facilities; as a result of its labors a comprehensive scheme of terminal operation was adopted. The fundamental features of this plan were a site conveniently located for both railway mail cars and auto trucks, a building of adequate dimensions and design in which to handle the mails economically and an extensive application of mechanical apparatus. In December, 1920, negotiations between the railway mail service and the Union Station Company culminated in an agreement whereby the station company should erect a new mail terminal building and lease the six stories above the track level story to the federal government, the station company retaining the track level story and basement for its own operations.

The new mail terminal will be used for a variety of postal operations, but all of them are closely related to the receipt and dispatch of mail, either at the Union station or at the other railway stations in Chicago. The operation of this terminal will require the co-ordination of the activities of four independent groups of men; the mail terminal employees, the employees of the postal station, the Union station mail handlers and the employees of the mail street vehicles, but the duties of these several groups and the portion of the building assigned to them will be so clearly defined that little, if any, opportunity will be afforded for any confusion or interference.

An idea of the magnitude of the operations to be carried on in this terminal will be gained from the fact that it will be capable of handling 3,000 tons of mail each 24 hours, and will employ over 1,000 clerks and porters in the railway



A Part Plan of the Third Floor Showing the Separator Unit and the Floor Chutes and Ceiling Belts

*A brief reference to this terminal in connection with its relation to the Chicago Union station was made in an article on the station project published in the *Railway Age* of February 4, page 323.

mail terminal department alone. To meet these needs an enormous building has been provided. It occupies a length of 796 ft. along the east side of the Union station property between Van Buren street and Harrison street. It has a width of 76 ft. and a height of seven stories and basement. Besides the frontage on Van Buren street and on Harrison street which is relatively narrow, a private driveway is being provided along the full length of one side. Like the large freight terminals of the Pennsylvania, the Chicago & Alton and the Chicago, Burlington & Quincy recently completed or under construction in the same vicinity, the mail terminal will be of the two-level type to be served by platform tracks on the lower level and a teamway on the street level, the driveway mentioned above affording 580 ft. of clear tailboard space, or enough for 60 street vehicles at one time. The track level will have platform lengths adequate to serve 61 cars, while the basement will afford communication by means of tunnels with cars at Union station platforms remote from the mail terminal.

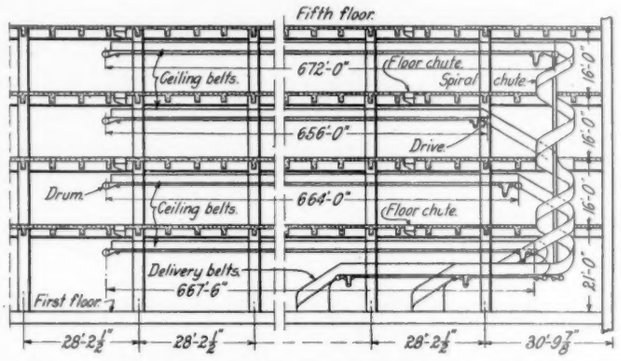
It is to be expected that the expeditious and economical movement of the vast amount of material which must be handled daily in this new terminal in units no larger than the ordinary mail sacks will require the application of suitable material handling equipment to the greatest extent feasible. Accordingly, arrangements have been made for the use of 15 freight elevators, 65 belt conveyors requiring the use of seven miles of belting and nearly 2,000 industrial trucks of various patterns and capacities, together with a sufficient number of tractors to handle them effectively throughout the building.

A Variety of Functions

The terminal will have a variety of functions. From the standpoint of railroad officers, the feature of first interest is the handling of mail received from and delivered to trains at the Union station. This portion of the work will be handled by Union station employees and will consist primarily of the transfer of mail sacks from street vehicles to mail cars and vice versa. However, the great bulk of the operations of the terminal will consist in the receipt, classifying and dispatch of all papers, catalogs and parcel post mail originating in Chicago, as well as mail of these three classes passing through the city. Much of the material will be received in the terminal already weighed and with the postage canceled, but on a considerable portion of it these operations will not have been completed. Consequently, it has been necessary to provide for a postoffice in the building for the receipt and handling of so-called postoffice mail.

All classes of mail made up in bags for mail cars on lines served by the Union station will be received on the street level at the north end of the building where 18 chutes will be available for transmitting the mail sacks directly to the track or basement level to be sorted and loaded on platform trucks to be hauled direct to the mail cars of the various trains. Incoming mail on trains entering the Union station will be sorted on the track or basement level, loaded on trucks and delivered to upper floors of the building by elevators. Sacks of mail properly sorted for other railway stations or for Chicago city delivery will be delivered to the street level floor and trucked to the driveway space near the south end of the building for transfer to the street vehicles.

By far the greater portion of the building will be devoted to the railway mail terminal service, the purpose of which is the receipt, classification and dispatch of all mail coming from the street or from the trains which is not received in sacks properly classified for delivery to trains or street vehicles. Such mail will be received from the street along the middle portion of the driveway space and from trains on the basement or track level. From these points of receipt it will be delivered to the upper floors of the building for the necessary work which consists of one or more classifications,

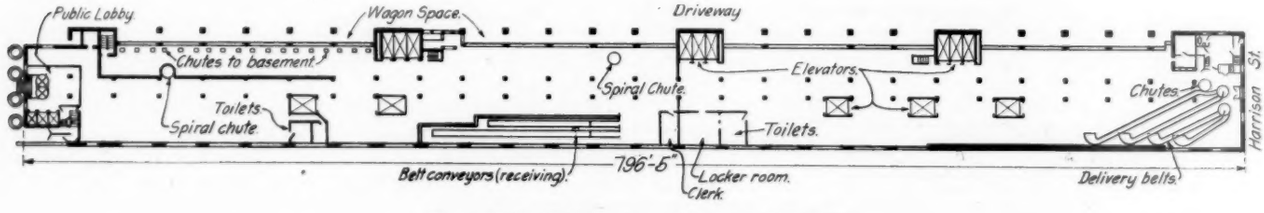


A Part Longitudinal Section of the Terminal, Showing How the Ceiling Belts Deliver Mail to the Spiral Chutes

resulting in the sacking of the mail properly segregated according to the various railway mail routes or street delivery. Another separation introduced is to provide that second-class matter, catalogs and small parcels, are not placed in the same mail bags with large, bulky packages. The first named are classified on the fourth and fifth floors and the other two on the second and third. Separation into these two classifications is to be made on the first floor or, insofar as possible, by persons or companies delivering mail to the terminal.

Second-class, catalogs, and small parcelpost packages delivered in sacks will be placed on 3-ft. by 8-ft. platform trucks and will be taken to the elevators and delivered to the fourth or fifth floors, according to a general classification. Sacks containing bulky packages, if classified according to states, will be placed on 8-ft. trucks and delivered to the third floor. In general, mail delivered to the upper floors on the 3-ft. by 8-ft. trucks will be transferred according to classification onto smaller trucks of a capacity of about 20 sacks each and delivered on these to the various state sections on the floors for classification.

The classification of bulky parcelpost mail received at the station in unclassified form will be handled through the aid of special classifying equipment, for which purpose the work will be greatly facilitated by having the mailer deliver it to the terminal in tilting box trucks which may be rolled off of the street vehicle with the minimum of effort. These tilting box trucks will be taken to two belt conveyors as indi-



Plan of the Building on the Street Level

cated in the plan of the street floor where they will be dumped onto the conveyors for delivery up an incline to the third floor. Here the packages will pass through what is known as a separation unit. As shown in the drawing this consists of a series of belts arranged in such a fashion that postal clerks standing on platforms between these belts may pick up packages from the feed belts and throw them onto other belts to separate them for certain general classifications. In addition two belts are to be provided to receive mail for another primary classification. These two belts will deliver this material up an incline to the fourth floor, where the second separation unit will be provided for the separation of the mail into other general classifications. The mail sep-

Drawing of the Building, Showing the View from Van Buren Street

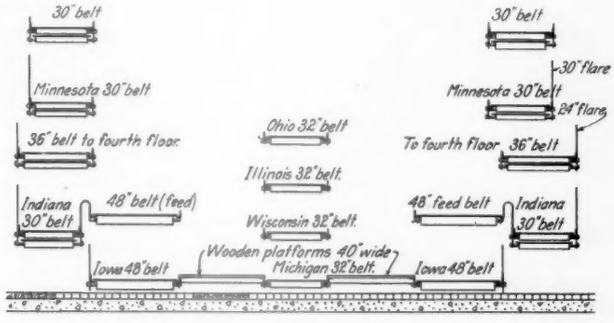
arated on the classification belts in the separation units on the third and fourth floors will be transmitted through openings in the floors and over other belts to working tables on the second floor and third floors, respectively.

The final separation and classification of all mail handled by the terminal forces is to be made at tables on the second, third, fourth and fifth floors where the mail is placed in sacks and properly marked, ready for delivery to the Union station forces on the track floor or the basement, or to the street vehicles on the street floor for delivery to various parts of the city or to other railway stations. This movement of the mail sacks from the second, third, fourth and fifth floors, to the street floor, the track floor or the basement, is to be accomplished with a minimum of manual labor and without the use of the elevators. Close to the ceilings directly below the second, third, fourth and fifth floors, five longitudinal conveyor belts (20 in all) are being provided, extending practically the entire length of the building and with which communication is afforded by means of 60 openings through each of these floors at approximately uniform intervals; these openings are to be of sufficient size so that mail sacks may be dropped onto the belts readily. Each of these 20 conveyor belts is to be connected with one of five double spiral chutes. One of these is located at the north end of the building, one near the middle and three at the south end. All of these chutes except two extend to the basement and the two in question are provided with delivery spouts on the street floor, as indicated on the floor plan.

Large Amount of Conveying Equipment Required

The conveyors consist of belting made of four thicknesses of canvas weighing two pounds to the square yard, traveling on rollers consisting of cold drawn seamless steel tubes, 3½ in. to 5 in. in diameter, made of No. 10 gage material. This tubing is spot-welded to pressed steel heads that support turned steel shafts ¾ in. in diameter. These shafts are to be fitted with renewable steel races and Hyatt roller bearings. The belt conveyors are equipped with either canvas or metal side guards, except where their use in separation units would result in interference. The belts are operated by motor-driven, double-drive pulleys, the main pulley being 30 in. in diameter and provided with an automatic gravity takeup. There will be 65 separate conveyor belts to be driven by 65 motors, all of which are to be of the multi-polar semi-enclosed type designed for 220-volt direct-current service. Provision will be made for a very complete system of control so that any continuous train of the conveying system may be shut off instantly by push buttons located at convenient intervals along its course. This will be provided to insure against the piling up of mail as a consequence of the continued operation of any portion of the train of conveying equipment when a section in advance has been shut off.

The spiral chutes are to be made of No. 12 gage steel plates with double blades. The mail chutes on the street floor are arranged to close flush with the floor when not in use so as not to interfere with trucking. Mail chutes leading to the ceiling belts are given a quarter turn so that the mail sacks can slide to within three feet of the belts instead of dropping the full vertical distance of 7 ft. from the floor level



Typical Section Through One of the Separator Units

to the belt. The elevators are to be equipped with automatic leveling devices to insure that the platforms of the elevators are locked on perfect level with the floor whenever the elevator doors are open.

The new mail terminal building was designed and is being constructed under the direction of J. D'Esposito, chief engineer, and A. J. Hammond, assistant chief engineer of the Chicago Union Station Company, in co-operation with the late Colonel E. H. Shaughnessy, second assistant postmaster general, and W. H. Riddell, general superintendent of the Railway Mail Service. The mail handling equipment is being installed in the building by The Lamson Company, Boston, Mass. Graham, Anderson, Probst & White, Chicago, are the architects.

THE CHICAGO SAFETY COUNCIL, in its co-operation with the railroads to reduce automobile accidents, finds that in the year ending December 31, 1921, out of 210 cases reported by the roads, 63 were instances where crossing gates were damaged by motor vehicles running into them.

House Committee Begins Hearings on Transportation Act

WASHINGTON, D. C.

THE HOUSE COMMITTEE on interstate and foreign commerce on February 23 began a series of hearings, at the request of the state railroad commissioners on proposed amendments to the Transportation Act. Chairman Winslow announced that the hearings would be confined to bills relating to Section 15-a of the act and the provisions relating to intrastate rates and as many bills relating to these subjects have been introduced during the past year the Sweet bill, H. R. 6861, was called up as the basis for the hearing. This proposes to terminate all control by the Interstate Commerce Commission over intrastate rates and to nullify all orders of the Interstate Commerce Commission relating to intrastate rates. It provides for dealing with questions of discrimination against interstate commerce by co-operative proceedings to which both the Interstate Commerce Commission and the state commissions would be parties. It also would repeal Section 15-a.

J. E. Benton, general solicitor of the National Association of Railway and Utilities Commissioners, made an opening statement outlining the history of the Shreveport case, the decision in which, he said, "attributed a meaning to the interstate commerce law which had been undiscovered for 25 years." He told the committee that the Interstate Commerce Commission, in spite of the fact that its "Shreveport powers" had been very clearly defined during the six years preceding the Transportation Act, has construed that act as giving it a power totally new which in effect results in centralizing the power of regulation over all rates.

Reading the resolutions adopted by the state commissioners at their convention in Atlanta as outlining their position as to amendments to the law, Mr. Benton said they do not contend that the so-called Shreveport power of the Interstate Commerce Commission ought to be wholly terminated, but the association asks a definition of the commission's jurisdiction that will hold it to the application of that power as it was exercised before the passage of the Transportation Act.

W. D. B. Ainey, chairman of the Pennsylvania Public Service Commission, said that he desired to approach the subject from a somewhat different angle. The Pennsylvania commission is not confronted with any serious situation arising from the Transportation Act, and its relations with the Interstate Commerce Commission are perfectly harmonious, but it is opposing the centralization of regulating authority in Washington on the ground that it is tending to deprive the carriers of initiative and responsibility. He believed that the correct policy of railway regulation is that represented by the Pennsylvania law, which makes the state commission a purely corrective body that does not substitute its judgment for the initiative of the carriers.

"So far as the Pennsylvania commission is concerned," Mr. Ainey said, "we would be perfectly willing to have all our authority taken away as far as railroads are concerned. We would still have plenty to do, but we are concerned with the overcentralization of authority over our rates in Washington. We believe it is depriving the railroads of responsibility and initiative and we don't believe it will lead to the best development of the railroad system or enable the roads to function properly and render adequate service. We believe the removal of all authority from the states such as has been accomplished will lead to a tendency against which we wish to protest because it will narrow the scope of the authority of the railroads themselves. . . ."

He said he had recently taken up with a member of the commission a question of vital importance to the city of Philadelphia but was told the commission could not deal with it in terms of the effect at Philadelphia but must consider San Francisco, Seattle, Chicago and St. Louis.

Representative Merritt said he agreed that the railroads ought to be allowed more initiative and asked if the proposed legislation provided for it, but Mr. Ainey said he was not discussing any of the bills and had not examined them.

Chairmen or members of a dozen or more state commissions were present prepared to testify on following days and Mr. Benton indicated that he hoped to have an opportunity to present a comprehensive statement later.

Operating Results with Gasoline Motor Cars

THE LINE of the Pittsburgh & Shawmut passes through the coal mining section of Western Pennsylvania and does not reach any large centers of population. Freight forms by far the most important traffic; in fact the road found that passenger trains were unremunerative but were necessary to keep up the production of the mining towns along the line because a supply of men could not be maintained at these points unless transportation facilities were provided to enable them to reach the larger towns. In order to reduce the cost of maintaining passenger service three Bowen motor cars were purchased and were placed in operation during the month of October, 1921. The results obtained up to this time are of special interest as indicating what may be expected with this type of equipment.

The motor cars have already been described (*Railway Age*, October 29, 1921, page 841) and for that reason further details will not be given here. The cars operate on severe grades and are not designed for high speed, the maximum speed on level track being about 30 miles an hour. The schedule on the Pittsburgh & Shawmut, including stops, averages 22 miles an hour. The cars are operated under the standard form of train rules adopted by the American Railway Association. The crew consists of two men—an engineman and a conductor. One car operates out of Brookville, Pa., making 98 miles daily, the wages, including overtime, amounting to $7.83 for the engineman and $9.38 for the conductor. Another car operates out of Kittanning, Pa., on an 83-mile daily run, the wages being $8.63 for the engineer and $9.10 for the conductor. The wages of the crew on these runs are respectively 17.5 cents and 22.5 cents per train mile.

The mileage per gallon of gasoline with these cars is about 6.8. The total cost of operation, including wages, material and supplies, fuel, and depreciation at the annual rate of four per cent, amounts to approximately 35 cents per train mile. The cost of operation of steam passenger trains based on the same method of ascertaining costs is approximately 71 cents per mile. Thus the motor cars reduce the cost by about one-half, at the same time giving more frequent service and developing business which could not have been obtained with steam train operation.

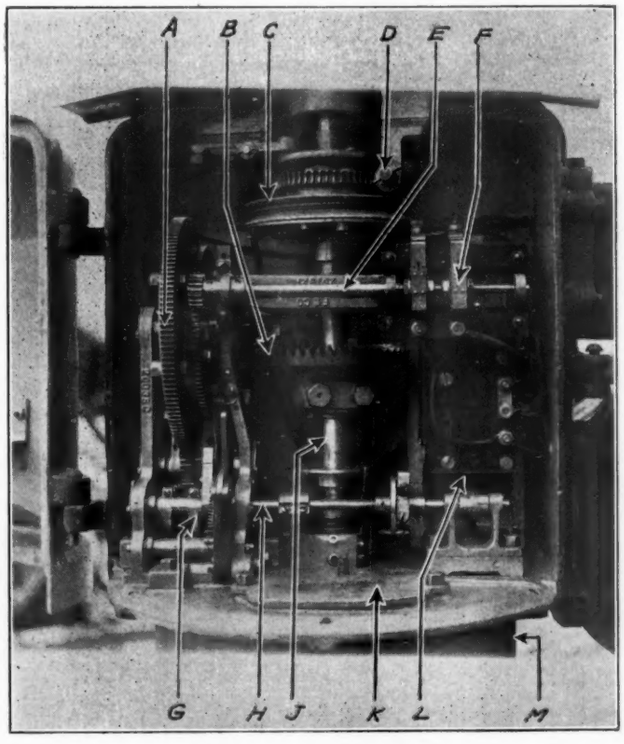
The cars handle 45 passengers seated, but have frequently been loaded with as many as 65 passengers leaving the initial terminal. There have been no derailments since the cars were put in operation. Some difficulty has been experienced by reason of sleet and ice making it impossible to operate on schedule time. The transmission gears originally applied gave some trouble and it has been necessary to replace them with heavier gears. As a whole, the railroad officers are well satisfied with the operation of the cars as it is felt that very little difficulty will be experienced since minor mechanical defects have been corrected, and the substitution of motor cars for steam train operation will enable the road to conduct its passenger business on a paying basis. The *Railway Age* is indebted to Dwight C. Morgan, vice-president of the Pittsburg & Shawmut for this information regarding the performance of the cars.

The Federal Signal Company's Audible Signal

Interesting Experiments on the Boston & Albany in Massachusetts and New York

THE BOSTON & ALBANY has in use two audible roadside signals, installed by the Federal Signal Company, of Albany, N. Y., last September, which have given very satisfactory service, functioning as distant signals; an audible warning (a torpedo) sounded in conjunction with the visual indication given by the three-position automatic semaphore. The torpedo is in position to be exploded by the passage of a train, at all times when the semaphore is in the 45-degree position. When the semaphore goes to the clear (90-degree) position the audible apparatus is cut out. The signals are on the westbound track of the main line, one at East Brookfield, Massachusetts, and one at Chatham, New York.

This apparatus was first put on the market by the Federal company several years ago, and one of them has been in use at Salmon Bay drawbridge, on the Northern Pacific, in the state of Washington, since 1914; but numerous changes of detail have been made in the design since that year. The cutting-out arrangement (by which an approaching engine-



Federal Audible Signal

man, after seeing the visual signal, can prevent the explosion) which has been a feature of the descriptions heretofore published, is not included in the Boston & Albany installation. (On the Northern Pacific the torpedo apparatus is at an interlocked stop signal and has never been exploded by a train. It is tested once a month.)

The Boston & Albany signals have operated without failure since they were installed, six months ago. They have been subjected to severe winter weather, and a heavy train service. The signal may be called a repeater of the caution indication, but it operates independently of the visual signal.

The shell magazine in the audible signal is designed to hold 72 shells, and is so interconnected with the semaphore that when the magazine approaches exhaustion the semaphore blade is set in the horizontal position against approaching trains. On the Boston & Albany reloading once in about two weeks is sufficient, explosions taking place on an average of 25 a week at each signal.

The mechanism is shown in the illustration, the torpedo drum being at the bottom of the case. This drum is rotated by means of a large weight which tends at all times to bring a new cartridge into firing position. This is accomplished by de-energizing a holding winding on the operating solenoid. When a cartridge has been fired, the operating weight indexes a fresh cartridge to the firing position so that the succeeding pick-up of the track relay (when the train has passed out of the block) will again put the mechanism in condition to repeat the firing operation. Check contacts are provided to insure that the audible signal is in a firing position before the signal control circuit is completed, so that the audible signal must be in firing condition before the visual signal can indicate either "proceed" or "proceed with caution."

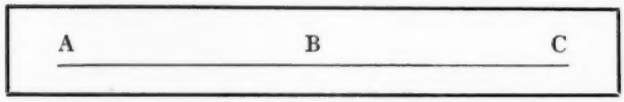
The mechanism case is mounted on a short post (iron pipe). This is set about 60 ft. in advance of the semaphore so that the explosion, which occurs about one second after the leading wheels of the train pass the signal post (and open the track relay) will sound at the moment when the engineman in the cab is nearest to it.

Within the post is suspended the operating weight, which is attached, by means of a cable, running over a grooved pulley to the main operating sheave *C*. The weight tends to rotate a main shaft *J*, at the lower extremity of which is mounted the drum carrying the cartridges (inside of *M*). Rotation of shaft *J* drives, through the medium of the bevel gears *B*, the spur gear *A*, which in turn cocks the firing hammers as each cartridge is indexed to the firing position. The hammers are held cocked by the triggers *G*. These triggers are carried on a trigger shaft *H* connected to the plunger of the solenoid core *L*. Thus, as the core *L* drops, the trigger *G* is disconnected from the firing hammer and one cartridge is exploded. The apparatus can be adjusted to provide for any number of explosions at each operation.

After the explosion, the drum is indexed by the weight to the new firing position. As soon as the solenoid core *L* is picked up the circuit controller *F* will close, to permit the semaphore to again clear. The controller contacts are in timed relation to the firing position of the magazine, through the medium of the gears and pinions on the left hand extremity of the shaft *E*. The shaft *D* is provided for disconnecting the operating weight when it is necessary to replenish

and reload the magazine. Access to the firing chambers is provided through a hand hole plate *K*.

The control of the explosion of the cartridge so that it will occur only on the passage of a train, and at the moment that the locomotive passes nearest to it, is accomplished by means of a contact on the track relay. Assuming that the leading train—the train to be protected—is in section *B-C*, The semaphore at *A* is at caution: and as the following train reaches *A* its leading wheels, by opening the track relay at that point, cause the semaphore arm to move to



the stop position and also cause the opening of a circuit to the solenoid which controls the release of the trigger that causes the explosion of the cartridge.

THE SPACE INTERVAL.—It is getting harder to railroad legislation through Congress now that they have installed the bloc system.—*Southern Lumberman.*

Freight Car Loading

WASHINGTON, D. C.

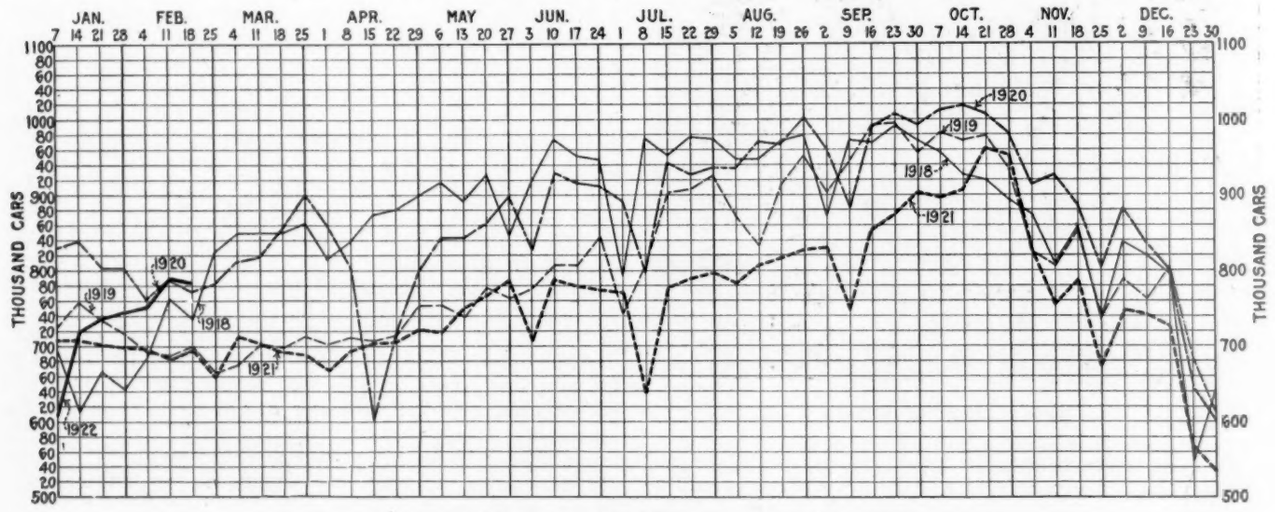
FREIGHT CAR LOADING for the week ending February 18 showed a slight decrease as compared with the preceding week, according to the weekly report of the Car Service Division of the American Railway Association, which is doubtless attributable to the observance of Lincoln's Birthday as a holiday in many parts of the country, but there was a large increase as compared with the corresponding week of 1921 and an increase over 1920. The total was 780,924 cars as compared with 692,007 in 1921 and 772,102 in 1920. The previous week the loading was 788,412. Increases as compared with last year were shown in all districts and in all classes of commodities except coke, forest products and ore. The principal increase was in coal but large increases also were shown in grain and grain products and merchandise and miscellaneous freight. The summary is given in the table below.

The number of surplus freight cars showed another reduction during the week ended February 15 to 278,481, which was 18,178 less than for the previous week. Of these 104,513 were box cars and 112,050 were coal cars.

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, FEBRUARY 18, 1922

District	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded: This year, 1922	Corresponding year, 1921	Corresponding year, 1920
Eastern	1922	9,833	2,719	46,880	1,654	5,363	569	60,688	60,948	188,654	.....	.....
	1921	5,359	2,889	43,630	1,056	8,621	654	48,511	53,634	.....	164,354	164,405
Allegheny	1922	3,274	2,658	54,319	3,754	2,652	781	44,977	46,093	158,508	.....	.....
	1921	1,871	2,976	44,239	5,051	2,687	2,880	38,840	46,711	.....	145,255	161,446
Pocahontas	1922	264	83	24,617	188	928	22	5,642	2,907	34,651	.....	.....
	1921	155	77	12,912	279	1,349	35	4,283	2,495	.....	21,585	30,763
Southern	1922	4,844	2,219	26,719	508	15,032	432	36,781	36,428	122,963	.....	.....
	1921	4,129	2,083	21,003	561	13,345	923	33,892	33,622	.....	109,558	121,862
Northwestern	1922	13,951	9,214	9,984	1,090	14,915	444	25,310	25,356	100,264	.....	.....
	1921	8,768	8,128	5,640	1,381	16,789	1,000	24,125	25,893	.....	91,724	112,644
Central Western	1922	16,392	11,169	22,857	302	4,573	877	29,985	31,244	117,399	.....	.....
	1921	11,372	10,345	16,154	258	3,783	2,099	28,086	29,956	.....	102,053	119,917
Southwestern	1922	5,651	2,265	5,324	170	7,333	909	15,667	21,166	58,485	.....	.....
	1921	5,075	1,833	3,826	139	6,424	529	16,326	23,326	.....	57,478	61,065
Total all roads	1922	54,209	30,327	190,700	7,666	50,796	4,034	219,050	224,142	780,924	.....	.....
	1921	36,729	28,331	147,404	8,725	52,998	8,120	194,063	215,637	.....	692,007	.....
	1920	36,714	29,168	171,408	9,818	57,931	11,614	140,874	314,575	.....	.....	772,102
Increase compared	1921	17,480	1,996	43,296	.....	.....	.....	24,987	8,505	88,917	.....	.....
Decrease compared	1921	.....	.....	.....	1,059	2,202	4,086	.....	.....	.....	.....	.....
Increase compared	1920	17,495	1,159	19,292	.....	.....	.....	78,176	.....	8,822	.....	.....
Decrease compared	1920	.....	.....	.....	2,152	7,135	7,580	.....	90,433	.....	.....	.....
Feb. 18	1922	54,209	30,327	190,700	7,666	50,796	4,034	219,050	224,142	780,924	692,007	772,102
Feb. 11	1922	55,914	30,274	192,167	7,823	52,638	4,015	222,908	222,673	788,412	687,867	786,633
Feb. 4	1922	48,969	27,998	185,151	7,844	50,204	4,015	218,571	211,134	753,886	699,718	762,680
Jan. 28	1922	50,880	32,590	180,966	7,502	47,373	4,007	211,466	208,944	743,728	701,605	803,332
Jan. 21	1922	52,181	31,961	164,091	7,267	50,328	4,269	213,642	214,536	738,275	708,658	804,866



Revenue Freight Car Loadings to February 18, 1922

I. C. C. Orders Increasing Intrastate Rates Upheld

Supreme Court Says Effective Control of Interstate Commerce Must Embrace Incidental Control Over Intrastate Rates

WASHINGTON, D. C.

THE VALIDITY of orders of the Interstate Commerce Commission increasing intrastate rates by the percentages applied to interstate rates in Ex Parte 74 was completely upheld in a unanimous decision of the United States Supreme Court handed down on Monday, February 27, in the Wisconsin passenger fare case, followed by a similar decision in the New York passenger fare case. In these cases the state authorities had contested the commission's orders advancing the intrastate passenger fares to 3.6 cents a mile, in spite of state fare laws providing for a lower rate, on the ground that they were beyond the powers of the commission as provided in the Transportation Act. A committee representing the state railway commissioners had also attacked the constitutionality of the provisions of the act, Section 13 and Section 15-a, under which the commission's orders were issued.

The decision was based on the broad ground that Congress in the Transportation Act had undertaken to insure an adequate system of interstate commerce by providing that the revenues should be adequate and that Congress, as the dominant controller of interstate commerce, may, therefore, restrain any undue limitation by a state authority of the earning power of the interstate commerce system in doing state work. The disparity between state and interstate rates which the commission sought to remove was declared to be plainly an undue, unreasonable and unjust discrimination against interstate commerce "within the ordinary meaning of those words" and the court pointed out that the power to remove such discrimination in pursuit of the effort to provide adequate transportation service for the country does not constitute a centralization of authority over both state and interstate commerce but represents merely an incidental regulation of state commerce upon occasion as part of the regulation of the agencies of interstate commerce.

An interesting feature of the decision is that it finds that a "new power" was conferred upon the commission in the new law to deal directly with discriminatory intrastate rates, whereas many members of Congress who were prominent in the drafting of the law have repeatedly said that they were merely writing into the law the doctrine of the Supreme Court's decisions construing the original act in the Shreveport and other cases.

In both of the cases the state commissions had permitted the increase of state freight rates by the percentages applied by the Interstate Commerce Commission on August 26, 1920, to interstate traffic but had declined to permit increases in intrastate passenger fares because of state statutes fixing the rates, and in the New York case, in addition, because the charter of the New York Central fixed a rate of 2 cents per mile on its main line.

In both cases the higher fares ordered by the federal commission have been in effect under injunctions issued by federal district courts whose decisions are now affirmed. In the Wisconsin case it was estimated that the difference in revenues resulting from the difference between the state rate and that ordered by the commission amounts to $6,000,000 annually and in the New York case the difference was estimated at $12,000,000.

The opinions were rendered by Chief Justice Taft. After outlining the history and the contentions of the opposing parties, in which he referred to the enormous increase in expenses of railroad operation during federal control and the purpose of the Transportation Act to provide by Section 15-a for an adequate basis of revenues after the return of the roads, he said that there are two questions for the court to decide: First, do the intrastate passenger fares work undue prejudice against persons in interstate commerce such as to justify horizontal increases of all of them; and, second, are these intrastate fares an undue discrimination against interstate commerce as a whole which it is the duty of the commission to remove? He pointed out that the orders in these cases are much wider than the orders in the Shreveport and Illinois Central cases. It is also stated that Section 13 "for the first time authorized the commission to deal directly with intrastate rates" when they are unduly discriminatory against interstate commerce—"a power already indirectly exercised as to persons and localities with the approval of this court in the Shreveport and other cases."

Transportation Act a New Departure

"It is manifest," the chief justice said, "that the act made a new departure. The new measure imposed an affirmative duty on the Interstate Commerce Commission to fix rates and to take other important steps to maintain an adequate railway service for the people of the United States. This is expressly declared in Section 15-a to be one of the purposes of the bill. Intrastate rates and the income from them must play a most important part in maintaining an adequate national railway system. Twenty per cent of the gross freight receipts of the railroads of the country are from intrastate traffic and 50 per cent of the passenger receipts. The ratio of the gross intrastate revenue to the interstate revenue is a little less than 1 to 3. If the rates on which such receipts are based are to be fixed at a substantially lower level than in interstate traffic, the share which the intrastate traffic will contribute will be proportionately less. If the railways are to earn a fixed net percentage of income, the lower the intrastate rates the higher the interstate rates may have to be. The effective operation of the act will reasonably and justly require that interstate traffic should pay a fair proportionate share of the cost of maintaining an adequate railway system.

Direct Power to Remove Discrimination Conferred

"Section 15-a confers no power on the commission to deal with intrastate rates. What is done under that section is to be done by the commission in the exercise of its power to prescribe just and reasonable rates, that is, the powers derived from previous amendments to the interstate commerce act, which have never been construed or used to embrace the prescription of intrastate rates. When we turn to Paragraph 4 of Section 13, however, and find the commission for the first time vested with the direct power to remove any undue, unreasonable or unjust discrimination against interstate or foreign commerce, it is impossible to escape the dovetail relation between that provision and the purpose of Section 15-a.

"If that purpose is interfered with by a disparity of intrastate rates the commission is authorized to end the disparity by directly removing it because it is plainly an undue, unreasonable and unjust discrimination against interstate or foreign commerce within the ordinary meaning of those words."

Commerce Does Not Regard State Lines

In reply to the objection that the order violated the specific proviso of the interstate commerce act that the commission is not to regulate traffic wholly intrastate, the court said: "Such orders as to intrastate traffic are merely incidental to

the regulation of interstate traffic and necessary to its efficiency. The effective control of the one must embrace some control over the other in view of the blending of both in actual operation. The same rails and the same cars carry both. The same men conduct them. Commerce is a unit and does not regard state lines, and while under the constitution interstate and intrastate commerce are ordinarily subject to regulation by different sovereignties, yet when they are so mingled together that the supreme authority, the nation, cannot exercise complete effective control over interstate commerce without incidental regulation of intrastate commerce such incidental regulation is not an invasion of state authority or a violation of the proviso."

No Doubt as to Constitutionality

It was stated that counsel for the appellant in the Wisconsin case had not contested the constitutionality of the statute, but that counsel for the state commissions who had been permitted to file a brief *amicus curiae* had done so. On this point the court said that the principles laid down by this court in the Minnesota, Shreveport, Illinois Central and analagous cases "we think leave no room for discussion on this point. Congress in its control of interstate commerce is seeking in the Transportation Act to make the system adequate to the needs of the country by securing for it a reasonable compensatory return for all the work it does. The states are seeking to use that same system for intrastate traffic. That entails large duties and expenditures on an interstate commerce system which may burden it unless compensation is received for the intrastate business reasonably proportionate to that for the interstate business.

"Congress as the dominant controller of interstate commerce may, therefore, restrict undue limitation of the earning power of the interstate commerce system in doing state work. The affirmative power of Congress in developing interstate commerce agencies is clear. In such development it can impose any reasonable conditions on a state's use of an interstate carrier for intrastate commerce it deems necessary or desirable. This is because of the supremacy of the national power in the field.

"It is said our conclusion gives the commission unified control of interstate and intrastate commerce. It is only unified to the extent of maintaining efficient regulation of interstate commerce under the paramount power of Congress. It does not involve general regulation of intrastate commerce.

"The action of the Interstate Commerce Commission in this regard should be directed to substantial disparity which operates as a real discrimination against and obstruction to interstate commerce and must leave appropriate discretion to the state authorities to deal with intrastate rates as between themselves on the general level which the Interstate Commerce Commission has found to be fair to interstate commerce." Discussing the possible effect of blanket increases in rates in particular localities, where, by discouraging patronage, earnings may be decreased, Chief Justice Taft asserted that should such results follow, the Interstate Commerce Commission would be available for appropriate action.

In this case the order of the district court for the eastern district of Wisconsin was affirmed. In affirming a similar decision of the district court in the New York case the court said that similar questions were involved, the only difference being that in New York the state had a charter contract with one of the roads providing for a two cent fare.

State Commissioners to Ask Modification of Law

This decision means a renewal of the campaign to induce Congress to amend the law to deprive the commission of what the court referred to as the new powers conferred by the act. A large number of state commissioners who had been testifying before the House committee on interstate and foreign commerce on bills to restore the powers of the state commissions were present in court when the decision was read. The Senate committee on interstate commerce has called a meeting for Saturday, March 4, to consider its action on the Capper and other bills in the light of the Supreme Court's decision.

Valuation Bill Passed by Senate

WASHINGTON, D. C.

THE SENATE on February 23 passed the bill introduced by Senator Cummins, at the request of the Interstate Commerce Commission and the state commissioners, to eliminate from the valuation act the requirement that the commission ascertain and report "separately the original and present cost of condemnation and damages or of purchase in excess of such original cost or present value" of railroad lands. There was practically no debate on the bill, but Senator Cummins had devoted an hour or so to an explanation of it. He explained that the commission had held that it is practically impossible to ascertain the cost of reproducing the land holdings of the railroads but that the Supreme Court had held in the Kansas City Southern case that the road must comply with the law, although in the Minnesota rate case the court held that to estimate what would be the actual cost of acquiring the right-of-way if the railroad were not there "is to indulge in mere speculation."

Senator Cummins said that it is estimated that land constitutes about 12½ per cent of the railway property, or approximately $2,000,000,000 and that if this were doubled by the application of a multiple, the additional 6 per cent return the public would be expected to pay would amount to $120,000,000 a year. He showed, however, that since the Kansas City Southern decision the commission has been reporting a figure for the cost of acquisition of land made up by using multiples ranging from 0.55 to 2.

"The commission has practically compromised with the railroad claim by adopting about one-third of the railroad demand," Senator Cummins said, "but even with the additions which are proposed, and which the Interstate Commerce Commission is now pursuing as well as it is able, and if no part of the further railroad claim is conceded anywhere, we will add more than $2,000,000,000 to the value of the railway lands of the United States, and that means an annual imposition upon the people in the way of railway rates of not less than $120,000,000; and if under the testimony which is being taken all the while by the Interstate Commerce Commission the railway claim should hereafter be given further consideration, it might add $4,000,000,000 or more to the value of these lands.

"My position is that when the railway companies receive the benefit of the unearned increment of all the lands in the United States, of which they have been in possession in many instances for more than 50 years, when rights-of-way which were insignificant in their cost at the time of acquisition have quadrupled and multiplied in many instances a hundred times, I think they ought to be content, and should not insist that we should not only give them the benefit of the increased value of their property as a whole, but that we should attempt to ascertain what it could cost to acquire by condemnation or purchase their particular rights-of-way at the present moment. That is the whole purpose of this amendment. It is to strike out the requirement that the commission shall find the excess of cost of present condemnation over present value. They are entitled to present value, and I think the commission ought to be permitted to go its way unhampered by a statute of this sort, to ascertain, according to the rules of the law, what the present value of the lands is."

Senator Kellogg remarked that the fact that the commission is required to ascertain this element of value does not necessarily mean that it would be included in the final value.

G. R. S. Company's Auto-Manual Train Control

A System Which Retains All the Advantages of Visual Signals and of the Enginemen's Brain

THE DRAWINGS and photographic illustrations shown in Figs. 1 to 6, inclusive, illustrate the automatic train control system of the General Railway Signal Company, of Rochester, N. Y., which was described in the *Railway Age* of October 29 last; but which since that time has been improved in various details. An essential element of this system is the arrangement for permitting the engineman,

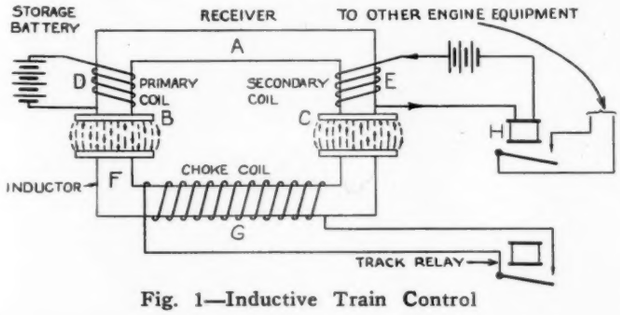


Fig. 1—Inductive Train Control

when alert and watching for and obeying the visual signals, to cut out the automatic brake-setting machinery and thus keep in his own hands full control of his train; and this is the reason for the name adopted, "auto-manual train control." The cutting out device is so arranged that the engineman must have the co-operation of the fireman, thus insuring that it shall not be used unless there are two men alive and active on the locomotive; and the circuit breakers are so combined in a small box that no cut-out can be con-

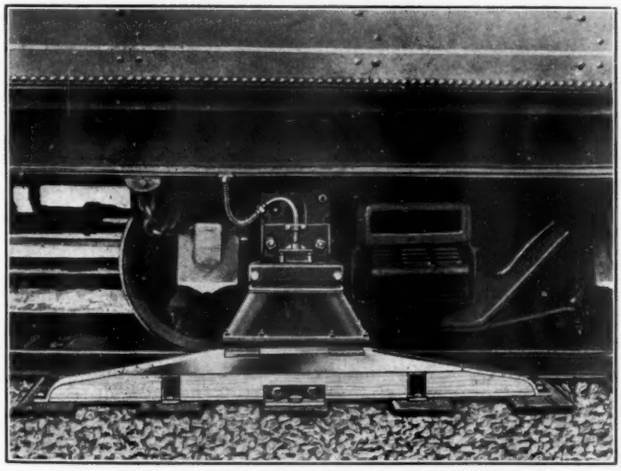


Fig. 2—Receiver on Tender; Inductor on Ties

tinued for a longer time than ten seconds; this to thwart the lazy engineman who might wish to cut out the stop apparatus for a whole run. If an engineman does allow his train to be automatically controlled, it must come to a stop before the control can be released.

From a detailed account furnished by the manufacturer, we condense the following description:

The means by which control is transmitted from the roadway to the moving train is induction, employing the inductor-alternator principle, as illustrated in Fig. 1. The inductor G is fixed on the ends of the ties with the pole faces 2½ in. above the top of the running rails. The receiver or locomotive element A is carried on the tender truck so that its pole faces pass about 2 in. above the pole faces of the inductor. On one leg of the receiver is placed a primary coil D fed from a storage battery. A secondary coil E on the other leg of the receiver includes in its circuit a storage battery and a relay H. The magnetic flux in the secondary coil, remaining constant in amount, keeps the flow of current through the relay likewise constant and holds the relay contacts closed. This is the normal condition on the locomotive. When, however, it passes a control point, if the circuit of the choke coil G is open, the inductor, partially completing the magnetic circuit of the receiver, will cause a large change of magnetic flux within coil E, which in turn will result in a sufficient variation of current to open the relay. The relay, when open, causes a brake application.

If, as the locomotive passes, the circuit of coil G is closed

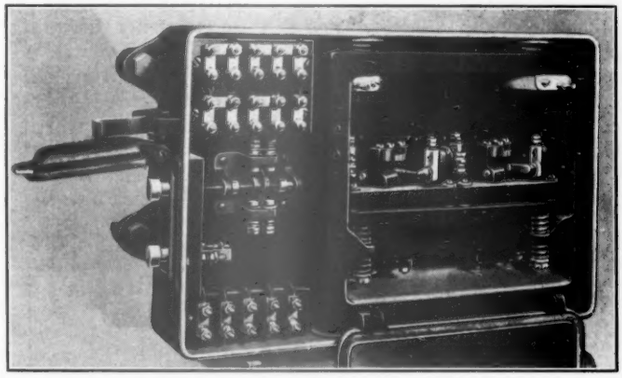


Fig. 3—Reset Key, Battery Switch and Relays

(by the track relay of the track section to which this control applies) this coil will then act as a choke, preventing the magnetic flux from varying materially in the secondary coil of the receiver; the engine relay will not be opened and the train will not be stopped.

It is to be noted that the coil on the inductor is never supplied with energy; the only thing necessary to make the inductor effective to stop a train is the opening of this no-battery circuit. Thus is avoided all trouble or expense to provide a roadside current-supply for train-control purposes. The inductor is of course uninfluenced by sleet, snow, water, etc., and is not affected by stray magnetic fields from passing electric locomotives or current in the propulsion rails. It is on an oak foundation with a manganese steel cap on the top. The manganese steel, being fairly non-magnetic, does not interfere with the proper function of the inductor.

Fig. 2 shows the inductor and the receiver. The receiver is fitted in between the projecting springs and journal box of the truck frame of the tender. It is adjustable vertically to compensate for wheel wear. It is resiliently supported by a cast steel structure fastened directly to the truck frame, in such manner that no car springs intervene between it and the axles.

The engine relay, Fig. 3, is so housed and supported as to be immune to the effects of locomotive vibration. It has a very light, short armature mounted on jeweled bearings. Two relays are employed, a primary and a secondary. The primary relay, designed to be especially rapid in action, takes a

very small amount of energy. The secondary relay need not be rapid in action and is provided with heavy carbon to metal contacts, giving a wide break and is capable of continuous and satisfactory handling of the current taken by the electro-pneumatic valve.

These two relays are resiliently supported in an inner housing, said housing being purposely made heavy, about 70 lb. This inner housing being in turn resiliently supported in the relay box proper, engine vibration is prevented from reaching the relays. The inner enclosure in addition prevents frost troubles and the accumulation of dust on the relays.

The Brake Setting Apparatus

The brake setting apparatus consists of an electro-pneumatic valve, controlling a cylinder which is directly connected to the engineer's brake valve handle (Fig. 6) with a mechanism so designed that the valve will automatically move to the service application position without danger of jumping to the emergency position. The engineer may at any time put on the emergency if he so desires; or, by exerting heavy pressure against the brake handle, he can modify an automatic brake application. Absence of air permits a heavy coil spring within the cylinder to move the brake handle to the service position. The spring is so designed and protected that even if it should break, it would continue to operate reliably.

As before stated, the engineman who permits automatic application of the brakes can release them only after the train has stopped. The reset key, with front and back contacts, is fixed on the side of the tender midway between the front and the back end, and is so connected in the circuit that if operated following an automatic application of the brakes, it will restore the automatic control equipment to normal. If an attempt should be made to lock the key in its release position it would cause an application of the brakes, it being

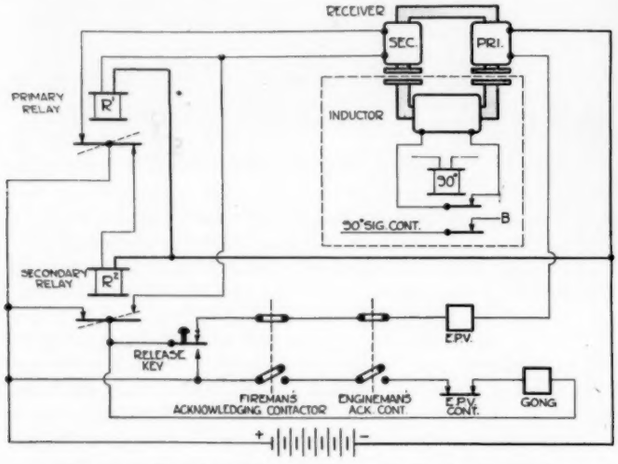


Fig. 4—Circuits of Auto-Manual Train Control

necessary in the process of restoring the automatic control equipment to normal, to first push the plunger in and then allow it to come back to its normal position.

Reversing Switch and Acknowledging Contactors

In order to set up the proper combination so that the engine will not be under control when operating against the current of traffic, a reversing switch is employed, and arranged to be operated by one of the axles of the locomotive or tender. This is so fixed that the direction of rotation of the axle automatically puts into commission the equipment on the right side of the locomotive, with reference to the direction in which it is moving. There is a receiver on each side of the locomotive.

To make the system "auto-manual" there is provided an "acknowledging contactor" for the engineman and also one for the fireman. A contactor (Figs. 4 and 5) has a normally closed and a normally open contact. The normally open contact is closed when the lever is depressed, and when closed it prevents a brake application. The normally closed contact is controlled by a time mechanism so that it will open after the lapse of ten seconds, thus making it useless for engineman or fireman to attempt to tie or lock the lever down. Ten seconds represents about 900 ft. of train travel at 60 miles an hour.

The two acknowledging contactors are connected in series, so that the engineman and the fireman must operate them

Automatic Cylinder on Brake Valve and Acknowledging Contactors

simultaneously, in order to forestall an application of the brakes. The fireman's lever is under the left window sill and engineman's under the right window sill. To the objection that the fireman's duties would prevent him from operating the contactor it is replied that he need only acknowledge restrictive signals; and on most railroads he is required to call signals, both favorable and adverse.

Current Supply and Speed Control

The current supply for the automatic train control equipment on the locomotive may be taken from the turbo-generator direct or from a storage battery independently charged or from a storage battery of smaller capacity floated across the turbo-generator and provided with the usual reverse current relay to prevent its discharge in case the turbo-generator voltage should fall unduly. There are required about 25 watts continuously while the automatic control is in effect. A cut-out switch is placed in the relay box so that the battery current may be cut off when the locomotive is out of commission.

This system readily provides for permitting a train to move

up to a stop signal without an automatic application of the brakes and without the use of acknowledging contactors, by the use of inductors placed along the road in combination with a time mechanism on the locomotive, the whole so organized that if a train passes from one inductor to the next with speed sufficiently reduced, no brake application will take place. Upon reaching the second inductor, the time mechanism will again have closed its circuit so that it would not cause a brake application. This speed control arrangement is exceedingly flexible and comparatively simple, involving the same kind of parts as would be used in connection with an automatic stop, except that the time contactors are added. Speed restrictions are instantly removed when and if the signal ahead shows a more favorable indication.

New Rules for Express Employees Announced

Overtime Provisions Changed—"Split Tricks" Authorized in Revised Code Governing Working Conditions

A NEW CODE OF RULES to govern the working conditions of employees of the American Railway Express Company was announced by the Railroad Labor Board on February 25. Included in the new "national agreement" are provisions for the payment of punitive overtime after the ninth hour of continuous service instead of after the eighth hour, the payment of punitive overtime to employees in train service after 270 hours per month instead of after 240 hours and for the working of "split tricks" where such work can be performed within a spread of 12 hours. The new rules became effective on March 1.

The national agreement with the employees of the American Railway Express Company, formed during federal control, contained 95 rules. The Labor Board's decision contains 17 rules of which eight are reproductions of corresponding rules in the national agreement, one is a new rule governing the effective date, etc., of the decision, seven are revisions of corresponding rules of the national agreement and two are reproductions of old rules with but little modification.

Because the express company and its employees agreed upon practically all of the rules governing seniority, discipline and grievances, and leave of absence, the Board remanded these subjects to the interested parties for settlement. In addition, the decision adds that "the Labor Board believes that certain other subject matters now regulated by the rules of the agreement between the employees and the carrier effective February 15, 1920, may not be covered in all localities by rules of general application, and require further consideration by the parties directly concerned." The rules thus remanded to the parties directly concerned total 76, including the rules of seniority, discipline and grievances and leave of absence.

The changes which have been made by the Board are summarized as follows:

Rules 39 and 90 of the national agreement provide for the granting of transportation to committees of employees handling grievances and to employees and those dependent upon them for support. In the new code, that portion of Rule 39 and all of Rule 90 containing these provisions are eliminated.

The new ruling covering intermittent service and giving the express company the right to employ men on "split tricks" without punitive payments, is exactly the same as the rule recently given to the clerks and to the firemen and oilers and reproduced in the *Railway Age* of January 28 (page 277). Under this new ruling, employees may be used for eight hours of intermittent service within a 12-hour spread.

Under the national agreement "split tricks" could be worked only where five or less employees were assigned at the smaller agencies.

Rule 54 of the expressmen's national agreement provided for the payment of punitive overtime after the eighth hour. The corresponding rule of the new code provides for the payment of pro-rata rates for the ninth hour and punitive overtime thereafter. In addition, the method of computing overtime for monthly rated employees, which was a part of the old Rule 54, is eliminated in the new ruling.

Under Rule 66 of the national agreement, express employees in train service were paid time and one-half overtime for all work performed above 240 hours per month. The new rule on this point provides for the payment of pro-rata rates for service in excess of 240 hours per month and for time and one-half for service in excess of 270 hours per month.

The same provisions were made for relief, substitute and extra train service employees in Rule 73 of the national agreement and the comparable rule of the new code has been changed to conform with the new Rule 66. In addition, Rule 73 provided that employees in train service performing extra work not in place of any regular messenger and paid no stated salary should be paid 50 cents per hour and helpers 40 cents per hour. These rates of pay are raised in the new code to 60 cents and 50 cents per hour, respectively.

In providing for the payment of employees called to protect a route other than their own, Rule 74 of the national agreement provided that;

> "Compensation for time so occupied shall be paid on following basis: For the first eight hours pro-rata, time thereafter at time and one-half time applied to each trip. (There will be a minimum allowance of two hours at time and one-half time for two hours' work or less. If time exceeds two hours but is less than eight hours, the bonus of one hour will continue up to and including the seventh hour)."

The new ruling on this point provides that "compensation for time so occupied shall be paid for on the minute basis at pro-rata rates with a minimum allowance of three hours' pay for two hours' work or less."

The minimum meal period of 30 minutes provided for in Rule 48 of the national agreement is changed in the new code to 20 minutes.

Rule 55 of the national agreement pertaining to punitive payments for calls to perform work not continuous with the regular work period, is changed so that the provisions of this rule apply to such calls either *before or after* the regular work period.

The wording of Rule 1 relative to the scope of the rules has also been changed slightly but its effect will be virtually the same.

Included among the rules of the national agreement which have been approved by the Board are those covering payments for reporting and not used, the eight-hour day, fixing and changing starting time, Sunday and holiday work, monthly assignment of employees in train service, overtime for fractional parts of a month of employees in train service and the payment of train service employees in short turn-

around service. In addition portions of several other rules are reproduced unchanged in the new code.

Similar rules relating to overtime payments for calls and monthly assignment and overtime rates for train service employees were also announced by the Board to apply to the Southeastern Express Company.

The questions of working rules and wages for yardmasters will be held in abeyance pending the outcome of conferences now being held between the carriers and their train service employees according to a recent decision of the Labor Board. Accordingly no new rules to govern the working conditions of these employees will be announced at this time nor will the organized yardmasters be a party to the wage reduction hearings which will begin on March 6.

Rules for Supervisors of Mechanics Announced

ANOTHER NEW CODE of rules governing, in this case, the working conditions of employees who are members of the International Association of Railroad Supervisors of Mechanics, was announced by the Railroad Labor Board on February 28. The new rules, which are reproduced in full below, apply to the Baltimore & Ohio Chicago Terminal; the Boston & Maine; the Colorado & Southern; the El Paso & Southwestern; the Gulf Coast Lines, including the Beaumont, Sour Lake & Western, the Houston Belt & Terminal, the New Iberia & Northern, the New Orleans, Texas & Mexico, the Orange & Northwestern and the St. Louis, Brownsville & Mexico; the St. Louis Southwestern, and the Southern Pacific (Pacific System). They are effective March 1.

The new rules are as follows:

Rule 1. The term "supervisor of mechanics" as hereinafter used, shall be understood to include all foremen below the rank of general foreman supervising mechanics in the maintenance of equipment department.

Rule 2. All supervisors of mechanics, herein specified, shall be compensated on a monthly salary basis.

Rule 3. To determine the daily basis for all employees herein specified, multiply by twelve the regular monthly rate (exclusive of compensation for extra service), and divide the result by the number of days in a year that service has been customarily performed.

Rule 4. Monthly salaried supervisors of mechanics shall be required to remain on duty only a sufficient length of time after the shift of mechanics they supervise have completed their tour of duty, to properly turn over the work to their successors, if on a relief position; or if not on a relief position to see that there are no fire hazards and that everything is in proper place and order.

Rule 5. Supervisors of mechanics will not be required to report for work on Sundays, unless they have supervisory duties to perform, or when attending a conference in the interest of the service.

Rule 6. Supervisors of mechanics whose tour of duty consists of seven days per week, will be granted two days off each month. If for any reason the supervisor is not permitted to have two days off each month, he will be compensated for those days on the pro rata basis, in addition to the regular monthly compensation.

Rule 7. There will be no deduction in the compensation of supervisors of mechanics on account of shops working reduced hours.

Rule 8. The entering of employees in the positions occupied in the service, or changing their classification or work, shall not operate to establish a less favorable rate of pay or condition of employment than is herein established.

Rule 9. When a new position is created the rate of pay will be established to conform to positions of similar character and responsibility.

Rule 10. Foremen temporarily assigned to higher-rated positions will receive the higher rate.

Rule 11. When supervisors of mechanics are required to leave their established headquarters (which will be designated by superior officers), in compliance with the directions of superior officers, they will be paid necessary actual expenses while away.

Rule 12. Employees covered by this schedule and those dependent upon them for support will be given same consideration in granting free transportation as is granted other employees in service.

Rule 13. In filling vacancies or new positions, supervisors of mechanics senior in the service employed on a division or terminal making written application for such position, shall be granted preference where ability is conceded; the superintendent or master mechanic to be the judge.

Rule 14. When a position held by a supervisor of mechanics is abolished, advance notice thereof will be given, and so far as the management is concerned, he may resume his seniority in the craft from which he was promoted.

Rule 15. Efforts will be made to provide suitable employment for supervisors of mechanics who have given long and faithful service and have become unable, on account of age or infirmity, to handle their present positions.

Rule 16. In case a supervisor of mechanics accepts an official position with the carrier, or a salaried position as a representative of the employees, he will retain all seniority rights as provided for in Rules 13 and 14.

Rule 17. This agreement shall be effective as of March 1, 1922, and shall continue in effect until it is changed as provided herein or under the provisions of the Transportation Act, 1920.

Rule 18. Should either of the parties to this agreement desire to revise or modify these rules, 30 days' written advance notice, containing the proposed changes, shall be given and conferences shall be held immediately on the expiration of said notice unless another date is mutually agreed upon.

The new rules are to apply to each of the above-named carriers "except in such instances as any particular carrier may have agreed with its employees upon any one or more of such rules, in which case the rule or rules agreed upon * * * shall apply * * *."

Referring to certain rules proposed by the employees, the decision says:

> The Board has eliminated proposed rules relative to classification of shops, classification of supervisors of mechanics, and duties required in case of industrial disputes. These rules shall cease and terminate, except in such instances as any particular carrier may have agreed or may hereafter agree with its employees upon any one or more of such rules, in which case the rule or rules agreed upon by the carrier and its employees shall apply on said road.

All rules regarding the subject of discipline and grievances are left to the carriers and their employees for adjustment, the decision stating that a "substantial number of the carriers and their employees have agreed upon the major part of" these rules. The Board also adds:

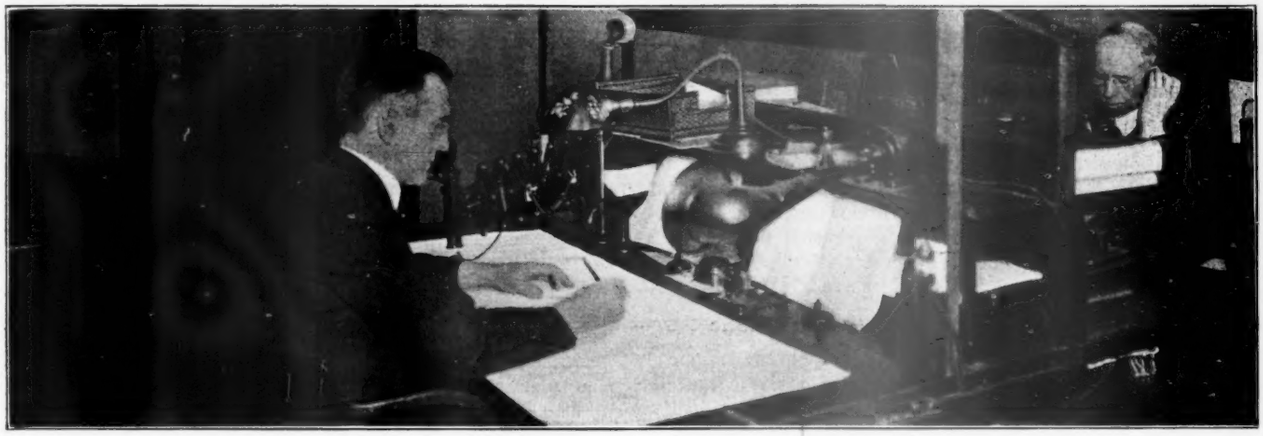
> The Labor Board believes that certain other subject matters may not be covered in all localities by rules of general application, and require further consideration by the parties directly concerned.

Similarly the questions of vacations and sick leaves with pay are, according to the terms of this decision, remanded to the carriers and the employees for settlement.

Correction

IN THE correspondence between W. H. Chandler, president of the National Industrial Traffic League and Thomas De Witt Cuyler, chairman of the Association of Railway executives, reproduced in the *Railway Age* of February 25, page 487, Mr. Cuyler is quoted as stating that "when the Railroad Labor Board announced its revision of the shop crafts agreement, it informally estimated that this revision would probably enable the railroads to save $300,000,000." This should have been $50,000,000.

THE CHICAGO & NORTH WESTERN has asked for a permanent injunction to restrain the Minnesota Railroad and Warehouse Commission from enforcing what is known as the "car shed law" of that State. The case was taken under advisement by the District Court at Minneapolis, on February 18. The law, which is scheduled to go into effect on September 1, requires railroads to build sheds for the protection of car repairers.



Loud-Speaking Telephone Receiver on Dispatching Circuits

The Telephone in Trunk Line Railroad Service*

A Discussion of the Use of Long Distance and Dispatching Circuits on the New York Central

By Stanley Rhoads
Telegraph and Telephone Engineer, New York Central Lines

THE USE of commercial telephones in railroad service began about 1890, but the privately owned and operated lines, such as dispatching and message lines, were introduced late in 1907. The telephone service on nearly all railroads is supervised by the telegraph department although at present the telephone outweighs the telegraph in importance on many railroads.

The expense of the telephones in railroad service is a quite appreciable item in the cost of operation of a road, as may be judged by the fact that it is estimated that the annual cost of the rented telephone service is between $7,000,000 and $10,000,000 for the railroads of the country. This includes the rental of the telephones and switchboards, together with the salaries of the operators, but does not include the cost of maintenance or the annual charges on the railroad-owned long-distance lines, which it is difficult to separate from the costs for other wires. The New York Central Lines costs for telephone rentals, toll calls and operators' wages total over $800,000 a year in normal times.

There are 9,500 rented telephones on the New York Central Lines, of which 5,500 are connected to 116 private branch switchboards, which require 250 operators; the remaining 4,000 telephones are on direct exchange lines. Each rented telephone costs close to $100 a year for rent, operator's wages, toll calls and measured service, although the nominal rental on the bill of the commercial telephone company may be but $3.60 a year. These figures indicate that the railroads probably use more telephones than any other industry in the country.

To give service over private lines of the railroads to the intermediate towns where no railroad exchange is maintained, a semi-local telephone line is provided on some railroads, with rented telephones connected at these towns, so that the division headquarters switchboard can be called directly, or can call these stations for such business as arranging Pullman reservations, obtaining freight or ticket tariffs, etc. It is not as yet economical for all stations to be connected to such railroad semi-local lines because the present rental rate on the telephones for such use is so high that it is prohibitive.

One switchboard operator can usually handle about 75 local telephones on a railroad private branch exchange, although if the lines are very busy, 25 may be all that can be handled. Two long distance lines may give one operator enough to do if the lines are busy and the conversations are short, for some time is required to make the record of the call. Five long lines are about all that one operator can handle even if their load is light.

Telephone repeaters are an important and indispensable adjunct to railroad long distance telephone service. It would be impossible to give service for distances as great as New York to Chicago with practicable sizes of wire, without them. The repeaters are rented from the American Telephone and Telegraph Co., and it is probably betraying no secret to say that they cost $1,200 each a year.

Economy of Railroad-Owned Long Distance Lines

Telephone service from New York to Chicago over the commercial telephone lines costs about $5.80 for the first three minutes and $1.90 for each additional minute, for particular party calls, such as railroad officers make, and based upon the average length of calls on the New York Central between these points, the cost would be more than $10 a call. This road has at the present time an average of 32 calls a day over the railroad line between New York and Chicago, averaging 3.75 minutes each. At commercial rates these calls would cost $231 a day, or $70,686 in a year of 306 business days. This is equivalent to the interest on $1,178,100 at six per cent. A line between New York and Chicago at present prices would cost about $300 a mile, or approximately $300,000. The interest on this at six per cent would be $18,000; consequently the railroad line is economical, giving about $70,000 in service at a cost of $18,000 a year.

At Cleveland the line is cut through to Chicago only while the connections from New York to Chicago are up. During the remainder of the time the line is used locally east and west from Cleveland. The sum of the through and local service would be equal to that of the through circuit for the

*Abstract of a paper presented before the Western Society of Engineers, Chicago, on February 23.

full eight-hour day. Therefore, the line is worth four times $70,000 because it is cut through to Chicago only one-fourth of the time for the 32 calls a day, making the total circuit value four times $70,000 or $280,000 a year, nearly enough to pay for the line each year.

Another way to state the conclusion is that more calls can be handled for the same money over railroad-owned long distance lines than over commercial lines. Many important matters will be delayed or valuable opportunities lost if railroad officials depend on commercial service because it is well-known that the number of commercial calls will be kept at a minimum by the fear of the large toll bills.

Telephones for Service With the Public

The public makes considerable use of the telephone to obtain information regarding the time of arrivals and departures of passenger trains and rates of fare. This demand has become so large at the big terminals that it has been necessary to provide special equipment to take care of it. A special twelve-position switchboard is provided for this use at the Grand Central Terminal. Telephone requests for Pullman reservations have also increased at the large cities, until special switchboards are required for this service.

Several railroads make use of automatic telephones at locations where operating conditions warrant the separate privately-owned plant. The Illinois Central has an extensive system in Chicago, while the Louisville & Nashville has several installations. The New York Central Lines have two, one on the Michigan Central at Detroit and one at New York City.

Message Telephones

There are at present 48 selector message telephone circuits on the New York Central Lines with 1,464 selectors. These message circuits are like train dispatching circuits in their equipment and are used as dispatching circuits when the latter fail.

Therefore some railroads call them emergency dispatching circuits. It is standard practice to place an operator on them at the division office, who does the ringing for other stations and who is called the monitor.

Messages are handled on these circuits about the same as on telegraph circuits insofar as symbols, form and sequence of filing time, date, address, text, signature and operators' signatures are concerned. It is difficult to eliminate conversational use of such circuits but such use is not encouraged. If the railroad is on the complete telephone basis, all railroad messages to and from way stations are handled on these circuits. Messages are handled just about twice as fast by telephone as by telegraph, according to our experience.

It is only a question of time until the chief trunk line railroads will be on the complete telephone basis on their main lines at least. Even on divisions where the telegraph is still used for message work and the telephone for dispatching, the operators make so little use of the telegraph that they are noticeably out of practice, and object to the use of the telegraph.

Nine-Hour Law Forced Adoption of Telephones

The first cause of the adoption of the telephone for train dispatching was the so-called "nine-hour" law of 1907 which limited the hours of service of telegraph operators to nine hours regardless of the actual work performed. The unlooked for and highly profitable result was that a great deal more work could be done by telephone dispatching than by telegraph and with lessened effort, by the same man on the same circuit.

This was reflected in faster train movements, reduced delays and consequent economies. It has also led to extending the length of dispatching districts in many cases, or to the doubling up of two districts during slack periods. There was some skepticism in the early days regarding the safety of the telephone for train orders but experience soon caused this to disappear. The results during 15 years of service under all sorts of conditions is the positive and conclusive verdict in favor of the telephone for this use.

There are two telephone train dispatching circuits on the New York Central at New York, on which no one wears a head-receiver, loud speaking telephones being provided at the dispatcher's offices and at all the way stations. Each circuit is about 30 miles long with 12 stations. One extends to Harmon and the other to North White Plains. There is so much traffic in this territory that the operators along the line would have to wear the receivers all the time if the head band type were provided. Trains pass the stations at such close intervals at certain times of the day that it is necessary to report their passing time to the dispatcher by the quarter minute.

The Western Electric Company has furnished a vacuum tube type of loud speaking telephone for the dispatcher on the Harmon circuits. Selectors would be too slow for such circuits, as it is necessary that all stations hear what is said and in this respect loud speaking telephones are the only kind that can compete with Morse telegraph, which of course can be heard at all stations all the time.

An important factor in economical railroad operation is the outlying telephone. One method is to run separate lines from the block stations to the outlying switches, where booths or pole boxes are provided. The train crews use these telephones to tell the block operators when their trains are in the siding, clear of the main track. Other railroads connect these telephones directly to the dispatching circuit and use them at closed stations, or at stations closed part of the day, as well as at switches. Thus the conductors have direct communication with the dispatcher, which permits giving train orders direct to the conductors without the intervention of a third party—the operator—and would seem to lessen the chance for error. It also places the responsibility upon an employee—the conductor—who has had long service, is well versed in the operating rules and is consequently more to be trusted than newly employed operators who may in many cases be young and inexperienced persons.

FIRE, OF UNKNOWN ORIGIN, at the car shops of the Atchison, Topeka & Santa Fe, in Chicago (West 38th street and South Central Park avenue), destroyed two freight cars on February 25. Estimated loss including part of a car repair shed, $65,000.

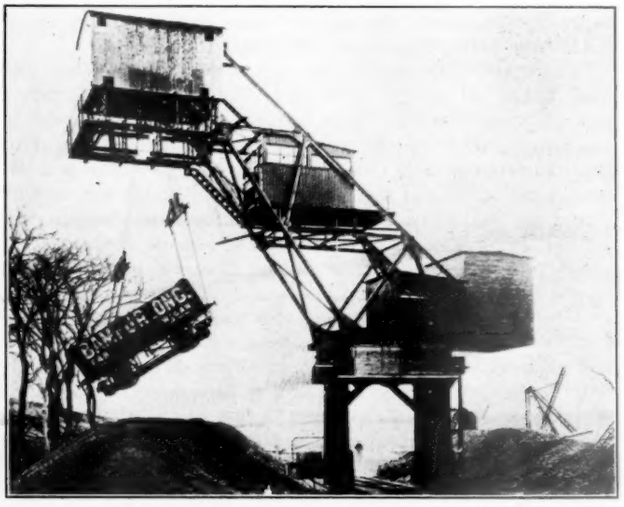


Photo by International

Handling Coal in England

Chilean Railways' Electric Passenger Locomotives

Two Types Provided for Express and Passenger Service—Express Locomotives Will Use Regenerative Braking

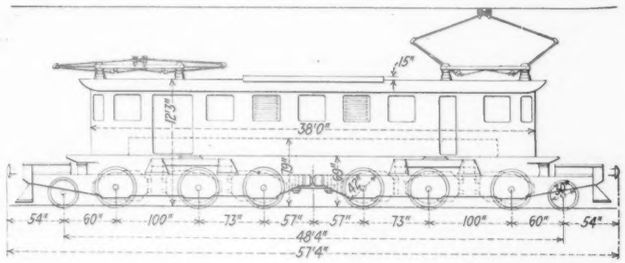
A TOTAL of 39 electric locomotives are to be supplied to the Chilean State Railways in the contract which provides for electrifying the section from Santiago to Valparaiso. This includes 6 express passenger locomotives, 11 for local passenger service, 15 for road freight service and 7 switchers.

The contract was awarded to Errazuriz, Simpson & Company, a Chilean firm, and all electrical equipment will be furnished by the Westinghouse Electric International Company. Conditions which must be met and the manner in which electric traction will be used to meet these conditions were described in an article in the January 21, 1922, issue of the *Railway Age*, page 216.

Express Passenger Locomotives

The six electric locomotives which are being built for express passenger service will be capable of hauling 300-ton trains in either direction between Valparaiso and Santiago without the aid of helpers as is now necessary with steam operation on the Tabon grade, between Llai Llai and La Cumbre. This type of locomotive will weigh 127 tons and will have 105 tons on the drivers. It will have a nominal rating of 2,250 hp. corresponding to a speed of 37 miles per hour at a tractive effort of 23,400 lb.

The wheel arrangement will be 2-6-0 + 0-6-2, consisting of two main trucks, each of which has three driving axles and a two-wheel guiding truck. The cab will be of the single box type and the motors will be geared direct to the driving axles.



Side Elevation of Express Passenger Locomotives

DIMENSIONS AND WEIGHTS OF EXPRESS PASSENGER LOCOMOTIVES

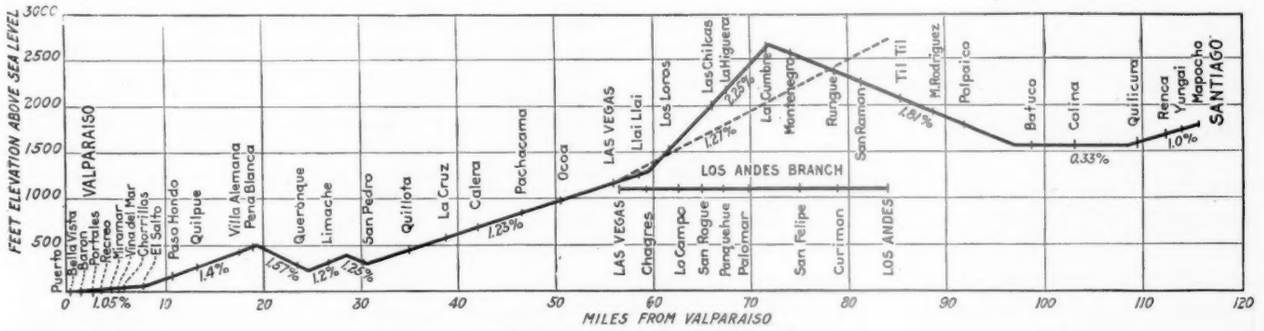
Classification	2-6-0 + 0-6-2
Length over buffers	57 ft. 4 in.
Length over cab	38 ft. 0 in.
Total wheelbase	48 ft. 4 in.
Rigid wheelbase	14 ft. 5 in.
Diameter of driving wheel	42 in.
Diameter of guiding wheel	30 in.
Weight of complete locomotive	253,600 lb.
Weight of mechanical parts	160,000 lb.
Weight of electrical parts	93,600 lb.
Weight per driving axle	35,000 lb.
Weight per guiding axle	21,800 lb.

The trucks will be connected at the inner ends by a drawbar held in tension by spring buffers. The frames will be cast steel, bar type, located outside of the wheels, connected by cast steel bumpers and crossties and carried on semi-elliptic springs over the journal driving boxes.

The cab underframe will be of rolled steel longitudinal members connected by cast steel and rolled steel cross members. M.C.B. couplers will be used with Continental spring buffers. Although eventually all drawbar equipment on the Chilean railways will be changed to M.C.B. standard, the Chilean freight cars now use the Continental type drawhooks and for this reason the M.C.B. couplers will be provided with attachments for chain couplers.

The automatic air brake equipment will be the Westinghouse type 14-EL, a standard similar to that used on the present steam locomotives. With this equipment straight air is available for handling the locomotive alone and the automatic feature for both locomotive and train.

The locomotives will be equipped with six 275 hp. driving motors provided with field control and geared direct to the axles by Nuttall flexible spur gears. These motors are designed for operation two in series on 3,000 volts and will be grouped in three speed combinations, all six in series for low speeds, three in series with two groups in parallel for two-thirds speed and three groups each with two motors in series for full speed. There will be six running positions, the change from one motor combination to another being made by the shunting method of transition.



Profile of Zone to Be Electrified

The control equipment is designed for operation of the locomotive from either end and provision for regenerative electric braking is included. This enables the locomotive to return energy to the overhead system when descending grades. The main motor armatures will be connected in the same combinations when regenerating as when motoring, the excitation for the motor fields during regeneration being supplied by a constant voltage motor-generator set.

There will be two master controllers, one in each end of the cab, and the same controller will be used for both motoring and regulating. This controller will have four levers with a total of 51 notches available in the three combinations. Westinghouse type HLF control establishes the main circuit

connections by the use of individual unit switches operated by compressed air controlled by electro-magnetic valves.

Motor-generator sets will supply low voltage current for the control equipment, blowers and compressors. This is a two-bearing type of machine with a common frame for both motor and generator. The normal rating of the set is 35 kw. at 95 volts with 3,000 volts at the motor terminals.

The current collectors will be spring raised, air lowered and mechanically locked in the lowered position and controlled throughout by compressed air.

On level tangent track these locomotives will have a running speed of 61.5 miles per hour when hauling a 300-ton trailing load. On the Tabon grade, which is 2.25 per cent, the average running speed will be 33.5 miles per hour. The maximum tractive effort based on 25 per cent adhesion will be 52,500 lb. and the maximum speed 62.6 miles per hour. The range of speed in regenerative braking will be 12½ to 50 miles per hour.

Local Passenger Locomotives

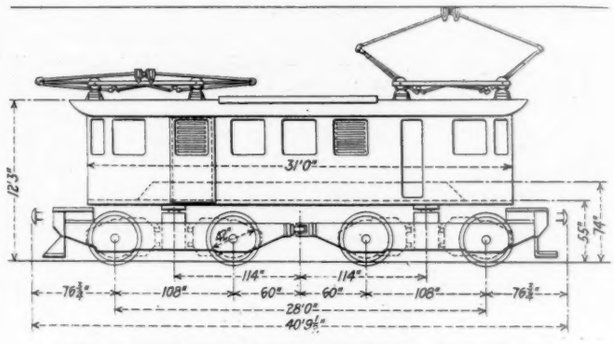
In general appearance the 11 electric locomotives for local passenger service will be somewhat similar to the express passenger locomotives. This locomotive will weigh 80 tons and the wheel arrangement will be 0-4-0 + 0-4-0. It will be capable of hauling a trailing load of 350 tons from Puerto to Vina del Mar, 260 tons from Vina del Mar to Llai Llai and return and 300 tons from Las Vegas to Los Andes and return. These locomotives will have a rating of 1,500 h.p. corresponding to a tractive effort of 15,600 lb. at a speed of 31 miles per hour. The maximum tractive effort under standing conditions will be 40,000 lb. and the maximum speed will be 56 miles per hour. The cab will be of the single box type and the motors will be geared direct to the axles. The general dimensions and weights will be as follows:

Dimensions and Weights of Local Passenger Locomotives

Classification	0-4-0 + 0-4-0
Length over buffers	40 ft. 9½ in.
Length over cab	31 ft. 0 in.
Total wheelbase	28 ft. 0 in.
Rigid wheelbase	9 ft. 0 in.
Diameter of driving wheel	42 in.
Weight of complete locomotive	160,000 lb.
Weight of mechanical parts	96,000 lb.
Weight of electrical parts	64,000 lb.
Weight per driving axle	40,000 lb.

The two trucks, each having two driving axles, will be connected at the inner ends by an articulated coupling in the form of a Mallet hinge. The frame and cab construction, the couplers and the brake equipment will be similar to those of the express passenger locomotives.

The local passenger locomotives will be equipped with four 275 h.p. driving motors provided with field control and geared direct to the axle with flexible spur gears. There will be two combinations by connecting the motors in series and in parallel and additional speed variations will be obtained by varying the fields of the motors.

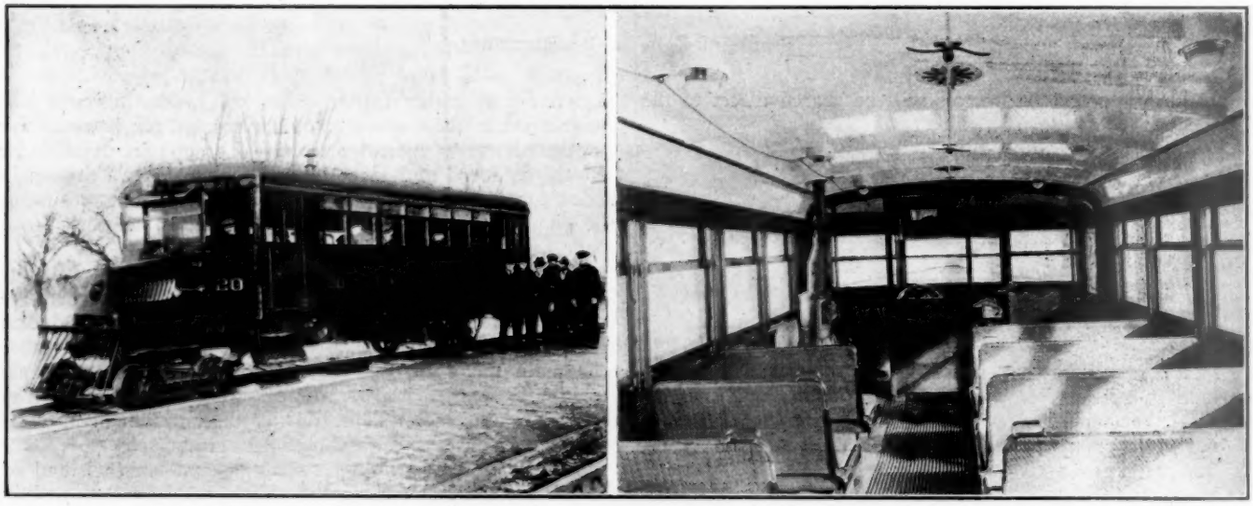


Side Elevation of Local Passenger Locomotives

The control equipment is designed for operation of the locomotive from either end but the grade conditions on the section of line on which these locomotives will operate do not justify the use of the regenerative braking feature. There will be two master controllers, one in each end of the cab, each controller having two levers, namely, speed and reverse, with a total of 23 notches available in the two combinations. The switching equipment duplicates that on the express locomotives.

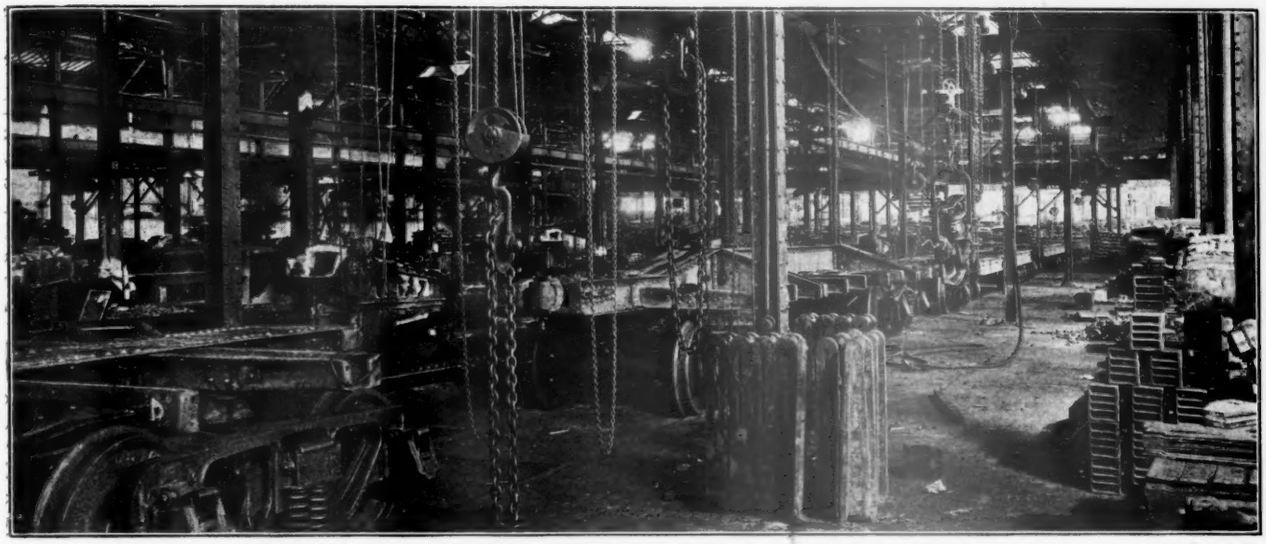
The motor-generator set will be a double armature machine, each armature consisting of a motor and a generator. The normal rating of the set will be 22.5 kw. at 95 volts with 3,000 volts at the motor terminals. The current collectors will be the same as on the express passenger locomotives.

On level tangent track these locomotives will have a speed of 56 miles per hour when hauling a 220-ton trailing load. The maximum tractive effort based on 25 per cent adhesion will be 40,000 lb. A great many of the electrical and mechanical parts are interchangeable between the express and local passenger locomotives.



Gasoline Motor Car on Lewisburg, Milton & Watsontown

Exterior and Interior Views of Car Built by J. G. Brill Co., Mack A-C Chassis—Note Seats for Three on One Side of Car—Has Seating Capacity of 40, Is 34 ft. Long Overall and 9 ft. 85/9 in. Wide. Passenger Compartment Finished in Cherry-Stained Mahogany



Business Handicaps of the Railway Car Shop

Lack of the Incentive of Competition—Limitations on Specialization—Absence of Cost Control

By J. W. Roberts
President, The Roberts-Pettijohn-Wood Corporation, Chicago

IN A SERIES of articles which recently appeared in these columns the present writer reviewed the results of a special study of the relative cost of making heavy repairs to freight cars in a railroad shop and in a contract shop. In the case reviewed the cost of the work done in the outside shop was found to be less than that done in the railroad shop, but the question may quite properly be raised as to whether this result is typical, or may not be due to special conditions not generally prevailing.

We know much more of the cost of contract shop work than of railroad shop work. In the former case the volume and the quality of work performed for the money paid out is definitely established by contract and is measurable. In the case of the railroad shop, however, we have, generally speaking, no reliable information either as to the total actual cost, the volume or the quality of the work turned out. Since railroad accountancy does not recognize the cardinal principle of cost accounting—that expense should follow the benefit conferred or the causative responsibility—the ascertainment of dependable railroad shop costs is a difficult undertaking. The question, therefore, cannot be answered by the simple process of demonstration, and we shall be obliged to satisfy ourselves by an analysis of the general situation.

Railroad Manufacturing Ventures

It is often contended that a common carrier strays outside its bailiwick when it engages in manufacturing enterprises. Manifestly a railroad should engage in manufacturing effort, if it be foreign to its nature, only for very good reasons. One good reason would be, for instance, the advantage of definite and enduring economies, if they are thus to be gained. Another would be necessity imposed by isolation from manufacturing centers, or the difficulty attending any other than an internal source of supply. The genuineness of the necessity can be readily tested, but where economy is the motive it is more difficult to determine whether appearances may be relied on and, if so, for how long a time. How many railroad manufacturing establishments are strictly necessary adjuncts or are definitely known to be paying their way? Most such enterprises live, it is believed, by grace of the management's tolerance.

Railroad management requires special training and a high degree of technical skill because of the peculiar demands of the business. Even so does the manufacturing industry require peculiar skill and ability because it has its own laws and rules of procedure which are as inexorable as those pertaining to the field of transportation. The known advantages possessed by a railroad-fostered manufacturing enterprise, such as transportation at actual cost, an unsolicited patronage, a divided burden as to general expense, and certain other special privileges are, after all, merely incidental benefits. On the other hand it is subjected to handicaps of a fundamental character when compared with private industry. It lacks the spur of vigorous competition, which is the ever-present incentive for the private producer to work efficiently lest his business perish, and we recognize no greater necessity than that of self-preservation.

Now let us briefly examine into the commercial car plant's situation, as compared with the average railroad shop, after which the reader may, it is hoped, be assisted in arriving at his own conclusions.

Relation of Wage Payment Basis to Labor Efficiency

Manufacturers have long since recognized that while the labor wage is an important element of cost, the man-hour output is of even greater importance. Every workman's service costs more than his wage. The additional cost is proportional to the time he expends in the shop. If the wage is based on piece work performance, the individual's pay depends on his output, but the fact remains that the shop time

he consumes further regulates the cost of his production.

For example, a shop operating on a piece-work basis may determine that 100 operations constitute a normal day's work, and may fix a rate of eight cents a piece. An inefficient operator may produce only 80 pieces a day and receive therefor $6.40; an efficient operator may produce 120 pieces a day for which he receives $9.60. Adding to these amounts the cost of power, supervision, maintenance of buildings and equipment, depreciation, insurance, taxes and other items of indirect expense, which may total $5.00 a day for each man employed, it is found that the total cost of 80 pieces produced by the inefficient workman is $11.40, or 14¼ cents each, while the 120 pieces produced by the expert workman costs $14.60 or 12⅙ cents each. The spread represents a difference of 17 per cent. It may be readily perceived that the increased productive costs due to the employment of inefficient workmen may convert the operating results of a shop from profit to loss.

In many instances the piece work idea is carried a step farther in contract shops, and gangs, including their leaders, are paid for piece-work. This not only stimulates the productivity of the individual but promotes co-ordination of effort and produces the maximum results from the group.

The piece-work basis may constitute only a temporary advantage enjoyed by the outside shop, but its unbroken sequence therein has placed the railroad shops under a handicap which they cannot quickly overcome. The contract shops have a corps of skilled workmen who are specialists, a tested method of rewarding special ability and a quick means of determining and disposing of the inefficient. Railroad management is now deterred from taking advantage of these methods of effecting increased output by the restrictions of public control. Furthermore, because of the labyrinth of relationships which must be sustained the problem of securing maximum efficiency from individual workers is a detail which perhaps never can be given the studious attention it merits.

Effectiveness of Supervision

The private manufacturer stresses the importance of effective supervision because he is cognizant of the numerous opportunities for creating expense which will devour his profits if individual effort is not properly directed and all operations fully co-ordinated. He therefore holds his supervisors to strict accountability; he requires that they administer strict discipline. In the railroad shops more laxity is observed with respect to these matters. There is more lost motion because individual accountability and discipline is less exacting. The atmosphere which pervades a properly managed private factory is frequently lacking. These conditions would materially lessen the benefits received by the railroads under the identical wage payment plans used in outside shops.

Effect of Volume of Output on Cost

Volume of output in a railroad shop frequently fails to meet the requirements of economical shop operation. The immediate needs of the transportation business must be promptly served. Even if repair cars are concentrated in large numbers, their progress through the shop may necessarily be interrupted by emergency jobs. On the other hand, repair cars may be purposely shopped in small lots because of the traffic conditions, labor scarcity, shortage of funds, or for other reasons. If the shop operating costs are not under strict control it is easy to overlook the effect which lapse of time has on the cost of output and to allow subnormal output unduly to increase the proportion of indirect expense.

In this respect the outside shop is unhindered except possibly by its inability to procure business. It is stimulated by a different incentive and follows a different procedure. Its sales force is constantly informed of the status of work in the shop and is charged with the responsibility of procuring business which will always keep work ahead. The heaviest possible load is kept on the shop because the manufacturer well knows the relation between maximum production and low costs. His fixed charges, which do not fluctuate with production, may be 50 per cent of the cost with low output and only 10 per cent with an output approximating capacity.

The outside shop draws its business from many sources; the railroad shop usually has but a single patron. The car builder may escape some burden of expense in slack periods by closing down his plant, but the railroad shop must maintain its non-productive organization because its shops are frequently used for ordinary repair as well as rebuilding or construction purposes.

Cost Affected by Shop Routine

There are marked differences in the practices of railroad and contract shops. The contract shop is normally organized and equipped to provide for the movement of cars under repair or construction from station to station until the work is completed. At each station the car is subjected to a definite set of operations, and the workmen are skilled in the performance of these operations. Tools and machinery necessary to expedite their performance are conveniently at hand. The materials required are ready in sufficient quantities to prevent delay, and so placed as to facilitate application. By this and similar methods the contract shop enjoys the effect of a high degree of specialization on the volume, quality and cost of output.

Contract shop undertakings are carefully planned and scheduled before the work is begun. The machinery is rearranged, if necessary, to permit a smooth and uninterrupted flow of work through the shop. Tools are made accessible, the material is stored at the proper place to avoid unnecessary handlings and delays and every operation from beginning to end is carefully co-ordinated to avoid lost motion and retarded movement.

Because of demands made on it by the operating requirements of the road, the railroad shop cannot attain a corresponding degree of perfection in its functioning. The variety of its performances and the relatively lesser volume of each, generally preclude the handling of work in the manner above outlined. Improperly laid out plants, inadequate equipment and the lack of skillful workmen are common handicaps.

Shop Arrangement and Equipment

A contract shop specializing in heavy repairs is usually carefully laid out and arranged for the special task for which it is intended. The machinery will be specially designed to fit the work and to reduce productive costs. The shop will be constructed with a view to expansion with the least possible additional outlay of capital. The whole arrangement and equipment will be attuned to a program of undertakings with certain definite limitations.

The average railroad shop is designed for less highly specialized service and expansion is usually effected by a "patching on" process which does not permit of the orderly conduct of operations throughout the shop. Special machinery which would facilitate production and decrease the cost is often absent because it would be used only periodically. It is evident that a railroad shop designed and equipped to carry a peak load of heavy repairs with the greatest efficiency would represent a heavy investment which would be unproductive for a considerable part of the time.

Ordering and Handling Material

The contract shop, except under unusual market conditions, orders construction materials sufficient to meet known requirements only. Shipments are arranged so as to avoid delay to work, as well as to minimize handling and storage expenses. The builders seem to be able to control deliveries to better advantage than the railroads when the latter supply

certain materials, and but little difficulty is experienced in adjusting receipts so as to keep pace with production. Many of the car plants are situated near established market and production centers, which not only expedites delivery, but generally provides loads for the completed cars when homeward bound.

The railroads' situation is somewhat different. The constant need for many kinds of repair material prompts the accumulation of stocks at central stores, from which distribution is made to outlying points of consumption. Many railroad stocks have a very slow turnover. Much expense attaches to the repeated handlings to and from storage, and sometimes delay to shop work ensues. This disadvantage cannot be easily overcome. An extension of the inventories might save back hauls and shop delays, but the increased investment and risks caused by market fluctuations might offset or exceed the gains.

Differences in Character of the Work

The work let to an outside shop is usually defined by a rigid set of specifications, and regulated by constant inspection of the most critical sort. Outside repair work is generally done with a wholesale thoroughness, which creates a uniform physical condition in all of the cars affected. This thoroughness reduces the frequency of general shoppings, stabilizes the repair program and when cars are in demand it reduces the time out of service.

The work customarily done in the railroad shop is less thorough and passes a less critical inspection. A larger element of discretion is permitted as to the extent and character of repairs, as to the quality of materials used and as to the time the cars may be held out of service.

Supplementary Manufacturing in Outside Shops

One of the most disturbing conditions in the car building industry arises from the periodical fluctuation in the volume of available business. Railway purchases are controlled by the condition of the finances as well as the need for equipment. To provide against operating losses which would otherwise occur during periods of light production, many contract shops catering chiefly to car repair or construction work, are equipped to manufacture other things involving the same general processes. These related manufacturing operations serve to employ portions of the plant which would otherwise be idle at times, and reduce the expense of maintaining the business that under other circumstances would need to be borne by the output of new and rebuilt cars.

The railroad shop generally has no such relief. Its losses must be charged against the railroad's revenues, but they are not conspicuously displayed and they frequently escape notice.

Close Control Exercised by the Management

In the average contract shop the managerial influence is not so far removed as in the case of a railroad shop. It is direct and positive and obtains a quicker response. The delegation of responsibility is definite and unevasive. The system of accounting affords a clear insight into each phase of the business. It serves the manager as effectively as the instruments before him serve the driver of an automobile. The manager is not distracted by duties more or less foreign to his principal interest, which is to keep his production up and his costs down. There is no parent enterprise to make good his shortcomings.

The managing head of the railroad shop is often less fortunately circumstanced, through no fault of his own. His opportunities are less extensive, and his freedom of action is more restricted. These handicaps are inherent in his position.

Are Independent Car Plants Necessary?

Whether existing railroad shops that are used for manufacturing purposes are justified or not, the contract car shop must remain a necessity unless all railroads provide complete facilities for constructing and rebuilding their own equipment. It has already been suggested in these columns that the outside shops now provide a safety-valve for the railway shop labor situation.

If, then, good reason be found for the existence of the independent plants it behooves the railroads not to withhold their patronage without good reason, because the builders' charges must be regulated by their expenses. When their shops are only partially filled or shut down they are a source of expense that in the long run must be paid by the customers. Instead of investing large sums in additional facilities of doubtful economical value, would it not be well for the carriers to divert at least the overflow of heavy work to the outside plants? This could readily be done under a predetermined program for repairs or construction, which would permit of shop space being contracted for in advance.

Any general discussion of this subject cannot be wholly convincing because of the wide differences of conditions in railroad shops. But let the reader remember that as a condition precedent to passing judgment, he should have not only a knowledge of the cost of the outside work, but a thorough understanding of the true cost of doing business in the railroad shop, because judgment requires comparison and discrimination. Without such knowledge he may only guess, and the matter is much too important to be decided by guess-work.

President Urges Co-Operation Between Railways and Steamships

WASHINGTON, D. C.

AN AMENDMENT to the interstate commerce law which will permit railway systems to own and operate steamship lines engaged in other than coastwise trade was advocated by President Harding in his address to Congress on February 28 urging a plan of ship subsidies. "There is measureless advantage," he said, "in the longer shipments, where rail and water shipments are co-ordinated, not alone in the service but in the solicitation of cargoes which ever attends an expanding commerce."

The President also said that American railways must be brought into co-operation with American steamship lines. "It is not in accord with either security or sound business practice to have our railways furthering the interests of foreign shipping lines when the concord of American activities makes for common American good fortune." He added that we can and will make effective the spirit of Section 28 of the Jones act of 1920, providing for preferential rail and steamship rates on through shipments of American vessels.

These questions are also discussed in a report of a study on government aid to merchant shipping prepared under direction of the United States Shipping Board, on which the President's plan for a ship subsidy is based. This report said:

"It is believed by many that considerable indirect aid will result from the making effective of Section 28 of the merchant marine act. The legislation is mandatory and its real worth can only be determined by actual trial. The Shipping Board is making an exhaustive investigation of the practical application of this section as a preliminary to certification to the Interstate Commerce Commission that adequate shipping facilities are afforded by American ships.

"The railroad systems of the United States feel the need of definite import and export working agreements with steamships engaged in foreign trade. A number of such agreements have been made in the past, and some are still in force. They have usually been with foreign steamship lines; such agreements are prejudicial to American shipping. It would seem expedient and wise to permit reasonable working ar-

rangements to exist between railroads and steamships, with special reference to the interchange of traffic between the roads and vessels of the United States.

"The problem of fully and completely co-ordinating our rail and water transportation is acute and important. The solution of this problem will involve extensive research and study of the facts and principles involved. The work, of course, calls for the supervision of the Interstate Commerce Commission as well as of the United States Shipping Board. The suggestion has been made that a group of experts should be created, to be appointed jointly by these two bodies, whose chief duty would be to make full inquiry, and to formulate appropriate rules and regulations providing for such co-ordination, subject to the approval of the Interstate Commerce Commission and the United States Shipping Board.

"At the same time an added impetus can be given the investment of new capital in American shipping and in the possible purchase of vessels from the United States Shipping Board, if railroad interests are permitted to own and develop steamship lines operated exclusively in foreign trade. To do this effectively it would be necessary to modify Section 11 of the Panama Canal act (approved August 24, 1912) to the extent that vessels may be thus owned when exclusively engaged in foreign commerce. The provisions of that act would remain in full force, so far as they prohibit the use of the canal by vessels owned by railroad interests, if the vessels are engaged in traffic between the Atlantic and Pacific coasts of the United States. This would leave intact the main purpose of the original provision, which was to insure the competitive advantages of water-borne intercoastal traffic against the control of trans-continental railroads."

Following the presentation of the President's plan for extending governmental aid to merchant shipping, a bill to carry it out was introduced in both Houses of Congress. The provisions of the administration bill relating to rail and water transportation declare it to be the policy of Congress to co-ordinate fully and completely rail and water transportation, and the United States Shipping Board and the Interstate Commerce Commission would be authorized, empowered and directed to take such steps as may be deemed proper and necessary to bring about such co-ordination. In pursuance of this policy, those government agencies would be directed to create, from among their own personnel, a joint board to study rail and water traffic and conditions, their interrelations and the principles and policies essential to bring about their more complete co-ordination. The board is to formulate and recommend such rules and regulations, not inconsistent with existing law, relating to traffic between railroads and shipping lines, that it may deem proper and necessary to bring about such co-ordination. It is to be the duty of the United States Shipping Board and the Interstate Commerce Commission to make effective, by joint or individual action as the case may require, such rules and regulations as they may respectively approve: Provided, that this shall not authorize the commission to make any rule or regulation affecting shipping, and that all the provisions of Section 19 of the merchant marine act, 1920, shall continue in full force and effect with respect to the commission.

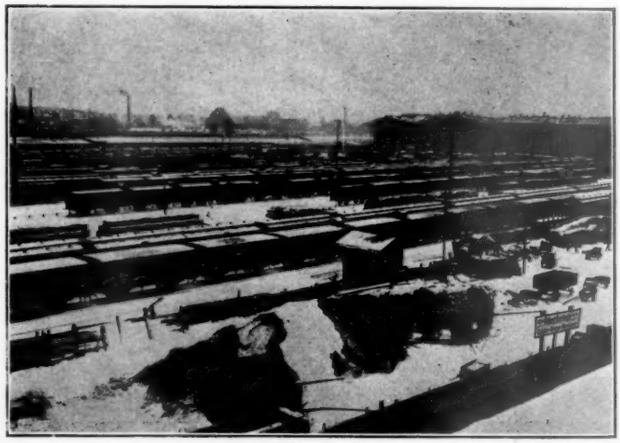
The ninth paragraph of Section 5 of the interstate commerce act (the Panama Canal Act) would be amended by inserting at the end thereof the following:

"Provided, that the provisions of this paragraph shall not apply in any case where such common carrier by water or such vessel is engaged exclusively in trade between any ports not included in the coastwise trade of the United States and not including trade upon the Great Lakes, but including trade between the United States and the Philippine Islands."

The bill also provides that whenever any common carrier by water engaged in interstate or foreign commerce shall enter into any agreement with any common carrier by land engaged in interstate or foreign commerce, each such carrier shall file immediately with the Shipping Board a true copy, or if oral a true and complete memorandum, of every such agreement or modification, or cancellation thereof, to which it may be a party or conform in whole or in part, relating to the interchange of freight or passengers or the making of joint or through rates or providing warehousing, docking, or other terminal facilities, or providing that the one carrier shall act in any manner as agent or representative of the other carrier or in any manner providing for a co-operative working arrangement between the two carriers. The term "agreement" in this section includes understandings, conferences and other arrangements.

The Shipping Board would be authorized to disapprove, cancel or modify any agreement, or any modification or cancellation thereof, whether or not previously approved by it, that it finds to be unjustly discriminatory or unfair as between carriers, shippers, exporters, importers or ports, or between exporters from the United States and their foreign competitors, or to operate to the detriment of the commerce of the United States, or to be in violation of law, or to be otherwise detrimental to the interest and welfare of the United States, and shall approve all other agreements, modifications or cancellations. Agreements existing at the time of the enactment of this act could be lawful until disapproved by the board, but would be made unlawful to carry out any agreement or any portion thereof disapproved by the board. All agreements, modifications or cancellations made after the enactment of this act would be lawful only when and as long as approved by the board and before approval or after disapproval it shall be unlawful to carry out, in whole or in part, directly or indirectly, any such agreement, modification, or cancellation. For violation of any provision of this section a penalty of $1,000 for each day such violation continues is provided.

Following another conference between members of the Shipping Board and officers of the Chicago, Milwaukee & St. Paul and the Great Northern at Washington on March 1, at which the Shipping Board renewed its previous efforts to persuade these railroads to abrogate voluntarily their traffic contracts with Japanese steamship lines, the Shipping Board issued an order stating that it requires a complete cancellation of all such contracts and that failing to realize these cancellations by July 1 next, the board will take such steps as it deems necessary to enforce its views. The railroads were represented by H. E. Byram, president of the Chicago, Milwaukee & St. Paul, and Vice-Presidents W. P. Kenney and L. C. Gilman of the Great Northern. Representatives of the Seattle Chamber of Commerce were also present.



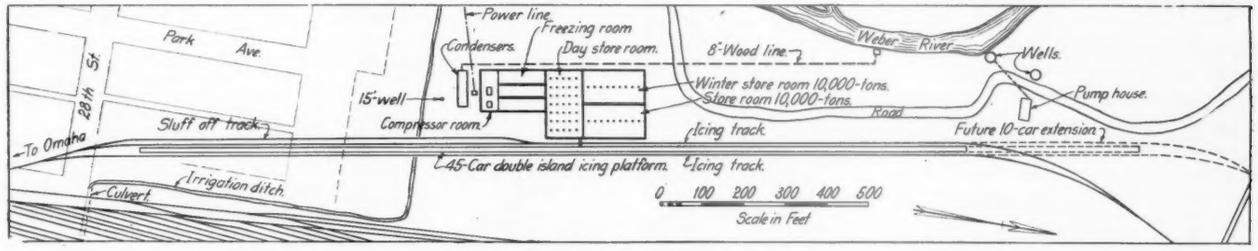
A Freight Yard in Berlin

Establishing Icing Facilities on a Large Scale

System Recently Inaugurated on Southern Pacific and Union Pacific Gives Highly Satisfactory Results

By W. C. Phillips
General Superintendent Ice Plants, Pacific Fruit Express, San Francisco, Cal.

THE PACIFIC FRUIT EXPRESS COMPANY was organized in 1907 by the Harriman interests for the purpose of providing the necessary refrigerator cars and furnishing refrigeration and ventilation service for the protection of perishable commodities originating on and moving over its lines. This service had formerly been provided by the Armour Car Lines. In 1907 the Pacific Fruit Express Company owned 6,600 refrigerator cars; in 1921 there were 19,200 of its cars in service, with prospects for the immediate construction of 3,000 additional cars. In 1907 this company handled 48,900 carloads of perishables, 50 per cent of which were given refrigeration service requiring 250,000 tons of ice. In 1921 the volume of perishables had increased to 170,000 carloads, of which 70 per cent moved with ice in the tanks and required a total of 1,600,000 tons of ice for refrigeration.

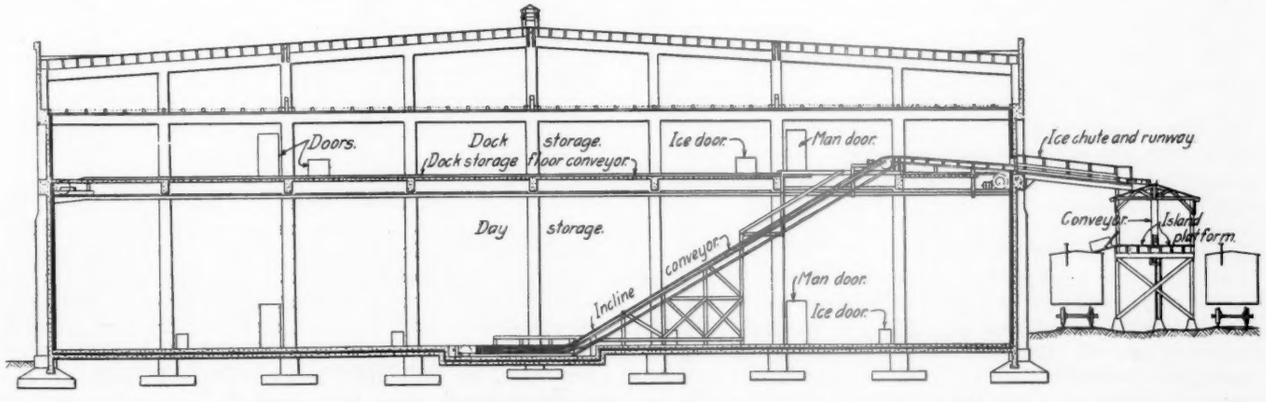


The General Layout of the Artificial Ice Manufacturing Plant at Ogden, Utah

Trend Has Been Toward Artificial Ice

In 1907 about 80 per cent of the ice used was purchased from commercial concerns, a very large proportion of this being natural ice. It has been found, however, that natural ice as a general proposition is uneconomical and not dependable, as a result of which the trend has been toward the use of artificial ice. In 1921 fully two-thirds of the ice used for car icing purposes was produced at plants owned and operated by the Pacific Fruit Express Company and only a small percentage of this was natural ice. One artificial ice plant having a manufacturing capacity of 60 tons daily was owned by the company in 1907 and constituted the nucleus of what is now one of the largest groups of ice manufacturing plants operated by one company. The company now has 12 ice manufacturing plants located on Southern Pacific and Union Pacific lines with a daily manufacturing capacity of 3,500 tons, and a storage capacity for 230,000 tons. The company also owns and operates five natural ice plants with a total storage capacity of 100,000 tons, these plants being located at points where a dependable and economical supply of natural ice is assured. The remaining ice required is obtained from a number of commercial concerns which operate under contract to furnish a specified tonnage. These plants provide an additional definite supply amounting to 1,300 tons daily, and a storage capacity for 80,000 tons which is held subject to the company's demand.

During the war period the production and distribution of perishable shipments received a considerable impetus. For various reasons, one of which was the impossibility of securing the necessary materials for construction purposes, this increase was not attended by a corresponding increase in icing facilities. This was the condition not only with Pacific Fruit Express Company but with commercial concerns as well. The very heavy increase in perishable shipments from points on the Southern Pacific and Union Pacific systems made it imperative that new and enlarged icing facilities be installed quickly. It was also thought advisable for the



Sectional View of the Day and Dock Storage Rooms of the Ogden Plant

company to own and operate all main line icing facilities to insure more economical and prompt handling.

$4,000,000 Construction Program Was Authorized

Early in 1920 authority was received to proceed with a construction program which contemplated an expenditure of approximately $4,000,000 for new and enlarged ice plants and icing facilities. A standard layout plan and design for buildings was adopted and construction started on several plants with company forces as soon as the layout and detail foundation drawings were prepared. This action was taken to prevent delay which would have occurred if work had been held up for complete plans and specifications, and the time necessary to secure bids from contractors. As an example of the dispatch with which work was handled, the ground was broken at Council Bluffs, Iowa, on March 21, 1921, and the plant was placed in operation on August 1. This plant has a daily manufacturing capacity of 250 tons, with a storage capacity of 21,000 tons, also an island car icing platform 2,460 ft. long which will accommodate two trains of 55 cars each. An idea of the general layout of this and other plants may be obtained from the illustrations of the plant at Ogden, Utah.

Reinforced concrete has been used almost exclusively throughout these plants, including the pilaster and curtain wall construction. Pure corkboard only was used for insulating the storage rooms. With the exception of the three steam-driven plants, all ammonia compressors are electrically operated with 150 to 187 r.p.m., 2,300-volt synchronous motors direct-connected to the compressor shafts. Duplicate direct-connected exciter sets were installed, each of sufficient capacity to excite one or both motors. The flooded system was adopted as standard for all freezing tanks. The accumulators, one for each tank, are of the drop leg type, and are placed from 16 ft. to 18 ft. above the tank coils which are 1¼ in. special ammonia pipe, 8 pipes high with extra-heavy return bends. All tank coils are split transversely in the center, thus making two coils placed end to end, each coil provided with a separate feed. All joints are welded with the exception of one flanged fitting on each liquid and suction line to the headers.

Agitators of ample capacity were provided to insure proper circulation of the brine in the freezing tanks, and electric hoist and power-driven cranes were installed. All cans are filled at the dumps, which at most of the plants are of the automatic sprinkler type. Inclined elevators as well as elevating and lowering machines and conveyors are of the company's own design.

The size and capacity of these various plants vary in accordance with the seasonal ice demands at different stations. The largest plant, at Roseville, California, has a daily production capacity of 525 tons, and a total storage capacity for 46,000 tons. In 1921 there was used a total of 165,000 tons of ice at Roseville, the issue for one day running as high as 2,400 tons.

Island Icing Platforms Give the Best Results

All main line icing stations on the Southern Pacific-Union Pacific route are now equipped with island or double car icing platforms accommodating 55 cars on each side, as shown in one of the illustrations. Operations last season have proved conclusively that this type of icing platform makes a decided saving in the economical handling of ice as well as in the time of trains in yards. Shorter icing platforms, causing delays and extra switching of cars, have in the past proved expensive to both the express car line and the railroad. These platforms are frame structures approximately 14 ft. high, with shelter roof and with a platform surface 14 ft. wide on which ice is handled. Along the center of the platform for its entire length there are installed mechanically-operated endless chain conveyors.

This plan permits the railroad to handle trainloads of refrigerator cars direct to the icing platform with a road engine, after which the incoming engine and caboose are cut off and the outgoing engine and caboose coupled on. Train inspection is accomplished while icing is under way, and the entire operation is performed without the necessity of again moving the train until it is ready to leave the station, thus greatly decreasing terminal time, and reducing the cost for switching. The general effect of these long icing platforms is to shorten the schedules of through trains, which, in connection with perishable shipments, is especially beneficial.

Provisions for 6 Per Cent Return and Government Loans Expire

WASHINGTON, D. C.

FEBRUARY 28 marked the close of two years since the return of the railroads by the government and also the expiration of two important periods fixed by the transportation act. The proviso in Section 15-a directing the Interstate Commerce Commission to take as the fair return which it is directed to try to allow the railroads in fixing rates a sum equal to 5½ per cent of the aggregate value of the railroads plus ½ per cent in its discretion for improvements, applies only to the two years beginning March 1, 1920. For the future the commission is directed to try to allow the railways "as nearly as may be to a fair return" upon the aggregate value and to "from time to time determine and make public what percentage of such aggregate property value constitutes a fair return thereon," but until the commission does so what little excuse there may have been for referring to these provisions as constituting a "guaranty" ceases to exist.

The commission apparently felt no need for haste in making public the percentage which it shall consider a fair return for the future since the rates which it prescribed in 1920 in the hope they would produce 6 per cent have, under the circumstances, produced only slightly over 3 per cent, and, as no one is proposing that rates now be increased the only object in determining a percentage now would be to end any uncertainty as to what it would consider a fair return. The question of what the percentage shall be is one of the subjects under consideration in the general rate investigation hearings which are to be concluded on March 9 and there are expectations that a decision may be rendered about April 1, so that it is possible the commission may announce the percentage at that time.

The provision for the recapture of net income in excess of 6 per cent is not affected by the expiration of the two-year period. It is contained in another paragraph of Section 15-a not affected by the proviso in paragraph 3 of the section.

The two-year period provided by the transportation act within which applications might be filed by carriers to the Interstate Commerce Commission for loans from the $300,000,000 revolving fund created by the act also expired on February 28 and therefore no new loans may be made by the commission except upon applications received by that time. The commission may, however, certify to the Treasury additional loans upon applications filed in time but not yet acted upon, as the funds become available, and a large number of applications were filed during the last two or three weeks, as noted in our financial columns.

Practically all of the available amount of the fund has been loaned but it has recently begun to "revolve," as its title indicates that it should, as repayments are made and as interest payments come in. The total fund was not made available for loans as $40,000,000 was tentatively reserved by the commission to meet claims, judgments, etc., against the Railroad Administration, arising out of federal control,

but more than $260,000,000 had been loaned at the date of the latest report because the revolving fund had been increased by repayments and interest. The maximum period of loan provided for in the act was 15 years, but many loans have been for shorter periods. The National Railway Service Corporation recently applied for a loan of $100,000,000 for the purpose of assisting it in the financing of new equipment and the rebuilding of unserviceable equipment. That amount is not now available but the application asked for loans in instalments, if it should be approved by the commission. In its annual report the commission suggested to Congress that if the period for filing applications should be extended approximately $103,000,000 might be made available for additional loans.

Rate Hearing Nears Conclusion

WASHINGTON, D. C.

TESTIMONY on behalf of shippers in the rate hearing before the Interstate Commerce Commission was concluded this week and after two days of railway rebuttal testimony oral argument in the case was to begin on Friday, March 4. February 23 and 24 were devoted to testimony on petroleum and its products, by representatives of the National Petroleum Association, American Petroleum Institute and Western Petroleum Refiners' Association, who in general asked for a reduction in their rates of 15 per cent plus the 4½ cents per 100 pounds by which the rates were advanced in 1918. The statements made were mainly devoted to showing the effect of the increases in rates in restricting the markets of certain producers.

Some of the witnesses said they could no longer ship by rail for distances over 400 miles, whereas they had formerly been able to ship up to 800 miles. The effect, they said, was to drive the business to water lines and pipe lines. Commissioner Hall asked one of the oil witnesses why, if the Standard Oil Company derived such advantages from the control of pipe lines, the independents did not build pipe lines, and Commissioner Aitchison said that when he was a boy water used to be transported in wagons, whereas now pipes are used. The witness replied that the reason was lack of capital, and that it is now cheaper to send oil by a railroad already built than by a pipe line that would have to be built.

Four days, February 25 to March 1, were devoted to testimony as to other commodities not previously scheduled. This brought out a large number of witnesses who urged reduction in the class rates and rates on agricultural implements, coffee, ice, paper and pulp, box board and paper board, slate, building stone and tile, office furniture, creosote oil, roofing material, burial goods, peanuts, sewer pipe, nursery stock, tan bark, clam and mussel shells, wool, zinc ore, bullion, paints, glass containers, surgical supplies, shoes, salt, seed, rice, clay and cocoanut oil.

The oral argument is scheduled to be concluded on March 9. The hearing has been in progress, with some adjournments, since December 14. Approximately 8,000 pages of testimony have been taken and over 400 exhibits have been filed.

Commission Asks for Information

The commission on February 21, served notice upon the carriers that it requires certain information in connection with its consideration of the general rate inquiry, and directed them to have the information ready for submission in the time allotted them for rebuttal testimony, as follows:

1. The carriers are requested to furnish separately for the eastern, southern and westrn groups, the western group to include the mountain Pacific group, and for the United States as a whole, financial statements for a constructive year based upon the operations of the calendar year 1921, modified in accordance with the most recent available factors of rate changes, volume of traffic and operating costs, including taxes.

2. The railroads and the Pullman Company are requested to furnish, so far as practicable within the time available, an analysis of the revenues and expenses of carrying passengers in Pullman cars as contrasted with passengers handled in other equipment, on both passenger-mile and car-mile bases. Such analysis should show the revenues derived from passengers handled in Pullman cars, indicating separately (a) the revenue from the regular passenger fare, (b) from the surcharge, and (c) from Pullman contracts or other sources. Expenses should, as far as possible, be analyzed on both car-mile and passenger-mile basis to indicate the difference in the expense of handling passengers in Pullman cars as contrasted with the expenses in other equipment. The year 1921 should be used, if possible. If not, such other period for which the data are available should be used.

3. Such analysis also should show a comparison of the number of passengers per car carried in Pullmans and in coaches by months, 1920 and 1921, and by years, 1915 to 1921, inclusive.

4. To what extent did the increased fares established by the Pullman Company May 1, 1920, increase the revenues of the railroads received from the Pullman Company under contractual arrangements, for the calendar year 1921.

5. Statements should be furnished showing for each commodity class used in the regular quarterly reports of commodities, both the number of tons (including tons from connecting carriers) and the freight revenue for the calendar year 1921, from all carriers that regularly compile such information.

6. The carriers are asked to furnish specific information with respect to the effect of rate reductions upon the movement of traffic. Their testimony has consisted largely of opinions of witnesses to the effect that the reductions heretofore made have not stimulated traffic. Specific figures for representative tonnage before and after important rate reductions should, as far as possible, be furnished. Particular attention is called to the reductions on iron ore in eastern territory effective about October 1, 1921, and upon export rates on iron and steel articles effective in the latter part of that year. The effect, if any, that these reductions may have had on the movement of traffic can be furnished by the American Railway Association from their car loading statistics.

Where shippers assert that a reduction in rates has stimulated the movement of traffic, they should furnish figures on which such assertions are made.

Public Opinion Can Restore Railroad Credit and Public Prosperity*

By William Sproule
President, Southern Pacific Company

I BELIEVE PUBLIC opinion will do more than either railroad men or bankers can do to bring about that improvement in conditions, which is the need of the time. The problem is how to reach the people so that the public may be correctly informed and that public opinion, thus enlightened, may move in the direction of national well being. By the public I mean the average man, the man in the street. He desires to know about our business, but he is accustomed to deal in easy and familiar terms, and unless the facts are presented to him in that form which attracts his attention, and which he can understand without serious mental effort on his part, our efforts to inform him fail.

I have heard doubts expressed about the public being fair, and yet I have an abiding faith that if we can get before the people the basic facts of our business, its principles and practice, they will endeavor to do the wise thing, and they are very apt to do the direct and wholesome thing. If we can but get the public to understand our difficulties they will help us.

First, the public should understand that the railroad funding bill now before Congress should pass. But the force of public opinion behind it is needed to have it passed. The public have the notion that it is some kind of a gift to the railroads, a gift of $500,000,000; instead of which there is

*An address before the forty-seventh annual convention of the American Bankers' Association at Los Angeles, California, October 5, 1921.

no gift about it. It does not propose to give the railroads a single dollar. The fact is that during the time of war the government had the railroads and ran them. The government made large capital expenditures for improvements and the railroad companies had neither the railroads nor the money with which to make the improvements. The government has since returned the railroads to their owners, and still there is no money to pay for these improvements. The railroads are simply asking that the debts be funded as any other public debt would be, so that the payment of the debts may be extended over a period of time upon an interest basis. When the government made the expenditures the amounts were charged up to the railroads, with the intention that these sums should be deducted from the standard return guaranteed to the railroads for the war period. But not only are the railroads not in position to pay these amounts at this time, but the situation is worse than that. For most of the railroads, including most of the great railroad systems of the country, have not so far been able to collect any of the money due them from the government for the guaranty period.

All the railroad companies got out of the federal period is, first, a load of debt because of capital expenditures incurred by the government; second, the promise of a guaranteed return, which promise in large part remains unfulfilled and the railroads are without the money; and third, they were left with a huge labor bill, so huge as to be to the present day a burden upon transportation that is only partly borne by increases in freights and fares, and although but partly borne, is causing keen criticism from the people who pay those freights and fares.

Very few realize what those burdens are. The war period carried the railroads along into 1920 and the United States Railroad Administration, during the brief period of four years, raised wages $2,230,000,000. This vast increase in payrolls does not represent increase in the public service. No, indeed, it represents 152 per cent increase in railroad operating expenses for wages, to gain not quite 8 per cent more hours of service.

At the same time the railroads are weighted down with these difficulties the burden of taxation has also grown. While contending with all this, an important part of the money gathered in taxes from the railroads has been turned into channels of competition with the railroads.

The trans-continental roads are in the hopeless fix of competing with United States Shipping Board vessels which do business between the ports of this country at a loss and for those losses the railroads have been taxed. The roads were taxed to help build the ships in the first place and are now being taxed to continue their operation at a loss in the second place. These high costs of shipping enter into the railroad difficulties and are part of the increased freights and fares the people have to bear.

Nor is the competition by ship all the competition the railroads have to face. The cities, counties and states have in the past few years built highways of hard foundation and smooth surface largely paid for by taxation of the railroads. Along these highways ply motor buses often holding as many as 40 people, and motor trucks ply in trains of two and three cars big as railroad freight cars and each designed to carry several tons. The railroads were taxed to build these highways and are being taxed to maintain them. In the meantime the highways are being broken down. Built as highways of easy communication for all the people, they have been perverted into highways of transportation for hire and have become in fact free highways for the carriers of freight and passengers, while the steam railroads must still stick to their own right-of-way and pay heavy taxes for the privilege of doing business over roadbeds of their own construction.

Now that the highways are being smashed to pieces under the pounding of these ponderous vehicles the great body of people who desire to enjoy these highways are beginning to sit up and inquire where they get off; and the answer is more taxes, both for the people and for the railroads. The new slogan is "Build the road to carry the load," and if these people have their say who do their business over these roads for hire, they will build a road that will cause the people of this country to carry a load of taxes under which they will stagger and fret for many a day. They will first have to build a taxpayer who can carry the load.

Thus there are combined against the railroad wartime wages, wartime taxes and increased competition by ship and highway for which also the railroads are taxed, until in 1920 taxes alone against the railroads amounted to $279,000,000, whereas the return on the capital invested in the railroads amounted in that year to only $62,000,000. Think of it—$279,000,000 in taxes against $62,000,000 in return on the money in the business; four and one-half times as much for taxes.

I submit to you that with the railroads in this fix it is idle to talk of remedy by reductions in rates. The fact is we are face-to-face with the cumulative effect of the Adamson Act and the acts of the United States Railroad Administration in all their bearings, including the so-called "national agreements" to which the railroads never agreed and in which the railroads had no voice whatever.

We have to address ourselves to these cumulative results, and happily if the public be fully informed public opinion will bring about the remedy that is necessary. The Adamson Act is still on the statute book, but let me tell you that the Adamson Act has been superseded for all practical purposes by the Transportation Act of 1920. The rate adjustments and so-called "national agreements" all are superseded by the authority granted under the Transportation Act of 1920 to the United States Railroad Labor Board.

That board is today the national government to all intents and purposes in dealing with disputes between railroad employers and employees regarding wages and working conditions. Today the Adamson Act is in effect and the acts of the United States Railroad Administration are in effect as to wages and working conditions only to the extent that the United States Railroad Labor Board elects to keep them in effect by its own rulings. So long as the board retains them in effect by its rulings, the burden will be borne by the railroads and by the public, and to whatever extent the board releases the railroads from these burdens to that extent only will relief be forthcoming. The relief so far obtained has only been fractional, and the board still has the subject under consideration.

Meanwhile, discussions are going on in the public prints as if the Labor Board decisions on wages and working conditions were to be respected at the whim of the parties interested, or to be thrown out of the window if unsuited to their purposes. But that is not the status of the United States Railroad Labor Board. When the board speaks in deciding wages or working conditions, it speaks as the voice of the public. It is composed of three parts. Three members represent the carriers, three represent the railroad employees and three are selected to represent the public. The President names all nine, but at least one of the public three has to concur in any decision handed down; and the sooner we get to a knowledge of the fact that the Railroad Labor Board is the voice of the government, and represents the public at large, the less misunderstanding will there be as to where we stand.

But it takes the support of the public to let the Labor Board know when it does speak for the public. If the public will but realize that the Labor Board represents them and that its wage decisions affect not only the railroads directly, but indirectly the rates of wages everywhere, the public will take more interest in being properly informed, and in adequately informing the Labor Board upon pending questions.

General News Department

The Reading Dissolution Case has been restored to the docket of the Supreme Court for reargument on April 10, by an order of the court issued on February 27. The question is on whether the decree in the district court is in conformity with the opinion of the Supreme Court.

The Pullman System of Railway Car Lighting was the subject of a paper by Ernest Lunn, electrical engineer of the Pullman Company, which was presented before the Illuminating Engineering Society, Chicago section, at the rooms of the Western Society of Engineers, on February 23. The paper was followed by a general discussion.

The United States Supreme Court in a decision rendered on February 27 sustained a decision of the district court in the case of the Western Union against the Louisville & Nashville, which held that the telegraph company had not a vested right in its easement for the placing of telegraph poles upon the right of way of the railroad. The state statute under which the telegraph company had enjoyed this easement had been repealed, but the company had claimed that it had a vested right.

Investigation of Power Brakes

The Interstate Commerce Commission has ordered an investigation to determine whether, and to what extent, power brakes now in general use are adequate and in accordance with requirements of safety; what improved appliances or devices are available for use, and what improvements may or should be made. Hearing at Washington, April 6.

Plans for June Convention

Details of the annual meeting of the Mechanical Division of the American Railway Association to be held in Atlantic City, N. J., June 14 to 21, 1922, are now being formulated. The association has announced that the reports of committees investigating car matters will be received and discussed on Wednesday, Thursday and Friday, June 14 to 16 inclusive, and the reports of committees investigating locomotive matters on Monday, Tuesday and Wednesday, June 19 to 21 inclusive. A circular has been issued giving a list of hotels in Atlantic City and the rates.

Hearing on Automatic Train Control March 20

The Interstate Commerce Commission, at the request of President Aishton, of the American Railway Association, has postponed the date of its order to 49 railroads to show cause by March 15 why an order should not be issued requiring them to install automatic train control. The date was extended to March 20 and a hearing on the order set for that date in Washington so as to enable railway officers who would be required to attend the hearings, also to attend the meetings of the American Railway Engineering Association and the Signal Section of the American Railway Association at Chicago, March 13 to 16.

Changes in Train Control Committee

Two changes have been made in the personnel of the committee appointed by the roads cited in the proposed train control order to represent them in the hearing before the Interstate Commerce Commission (*Railway Age*, February 18, page 442). T. H. Beacom, vice-president and general manager of the Chicago, Rock Island & Pacific and W. M. Jeffers, general manager of the Union Pacific, representatives of the operating division, asked to be released from this committee because of their participation in wage conferences. These vacancies have been filled by the appointment of B. R. Pollock, vice-president and general manager of the Boston & Maine, and by the transfer of A. M. Burt, assistant to the operating vice-president of the Northern Pacific, from the engineering to the operating division of the committee. Mr. Burt has been succeeded as a representative of the engineering division by W. P. Wiltsee, assistant engineer of the Norfolk & Western.

Hearing on Authority to Permit Acquisition of Control

The Interstate Commerce Commission heard arguments on February 28 at Washington on the general questions that have arisen in the Pittsburgh & West Virginia case as to the authority of the commission to grant the application for permission to acquire the control of the West Side Belt under paragraph 2 of Section 5 of the interstate commerce act. The arguments presented varying views as to the proper construction, principally as to whether it is mandatory or permissive, pending the commission's consideration and adoption of a plan of consolidation.

P. R. R. Fire Losses Only $26,000

Pennsylvania Railroad employes (in 1921) extinguishing fires on railroad property with the company's apparatus before the arrival of municipal fire fighters, kept the losses down to less than one-tenth of one per cent of the value of the property imperilled. In 1921 there were more fires but the loss was less in amount than in the previous year. The number of fires extinguished by employees was 288. The loss caused by these fires amounted to only $26,112.30, while the work of the employee firemen saved railroad property with an insurance valuation of $30,612,653.

A number of these fires were in buildings worth millions of dollars, but the average loss was about $90. This record is regarded by the railroad as very creditable to the employees in carrying out the company's fire-prevention regulations.

Mr. Jones and the Dining-Car Business

John J. Jones, a dining car waiter on the Congressional Limited Express of the Pennsylvania Railroad, between New York and Washington, has held that job 25 years, and the brass buttons which, day by day, he takes out of the coat that he takes off and puts into a clean one, have become so worn from thousands of polishings that he has had to ask for a new set. His record is so unusual that the railroad company's advertising department has issued a leaflet containing a little sketch of Mr. Jones' career, with a portrait. He is so continually amiable that passengers remark on the fact; and, to a woman who asked him to explain how he was able to keep smiling he said: "Madam, that is how I make my living. If I am courteous to passengers, they are good to me." Jones has been in the dining car service of the Pennsylvania altogether 35 years, and calculates that he has served 300,000 meals.

The same leaflet containing this little sketch says that the overhead charge in the operating expenses of a dining car amounts to 57 cents a meal; in other words, that average amount has been spent for each passenger whether he orders a slice of toast or a larger meal.

The Pennsylvania has authorized the construction of 20 new dining cars, and when these are completed, in the Spring, there will be in service on the company's lines 128 dining cars, all of steel.

The Pennsylvania now has in its dining car and restaurant department 2,230 employees, two-thirds of whom are waiters, cooks, etc., who are required to undergo a monthly physical examination. In November, and again in December, every one of these examinations proved satisfactory, each person being given an absolutely clean bill of health.

Operating Statistics of Large Steam Roads—Selected Items for the Month of December, 1921,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross. Excluding locomotive and tender	Ton-miles (thousands): Net. Revenue and non-revenue	Average number of locomotives on line daily: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region:												
Boston & Albany	1921	394	254,179	274,171	31,594	4,456	65.1	233,548	90,343	117	27	18.4	...
	1920	394	297,161	317,550	34,931	4,533	61.4	269,785	115,574	126	28	18.1	...
Boston & Maine	1921	2,469	548,875	608,503	49,429	10,813	66.4	568,035	222,275	327	127	28.0	43
	1920	2,469	634,551	701,688	60,819	11,465	67.4	662,635	300,724	345	117	25.3	7
N. Y., N. H. & H.	1921	1,960	436,234	474,690	26,418	10,292	67.0	521,137	210,834	298	83	21.7	33
	1920	1,959	473,838	498,652	39,642	9,624	64.8	543,424	241,807	293	107	26.7	10
Great Lakes Region:													
Delaware & Hudson	1921	887	362,682	473,145	36,023	8,522	59.7	576,598	280,162	266	42	13.6	99
	1920	881	418,180	585,653	40,092	9,836	63.8	678,216	356,729	268	45	14.5	38
Del., Lack. & Western	1921	994	511,233	626,616	121,196	14,657	66.4	793,638	349,771	299	63	17.4	24
	1920	997	588,391	725,310	145,546	15,655	64.3	945,535	453,294	322	70	17.9	...
Erie (inc. Chic. & Erie)	1921	2,259	885,984	1,003,448	57,321	26,046	63.3	1,505,818	695,175	583	182	23.8	94
	1920	2,259	1,104,951	1,255,276	48,577	31,451	65.1	2,023,208	1,011,024	582	105	15.3	50
Lehigh Valley	1921	1,430	564,223	617,569	63,241	14,398	61.4	890,016	404,520	424	121	22.1	122
	1920	1,431	645,947	723,871	67,821	16,239	61.8	1,075,057	534,500	391	190	32.8	63
Michigan Central	1921	1,827	471,645	478,763	18,871	12,798	61.3	700,503	261,959	314	96	23.4	102
	1920	1,829	485,635	510,083	19,613	13,295	60.8	777,377	339,579	322	97	23.2	68
New York Central	1921	5,655	1,719,845	1,917,229	139,435	56,034	62.7	3,246,582	1,375,924	1,076	527	32.9	294
	1920	5,646	2,230,566	2,554,763	202,815	66,025	58.6	4,345,532	2,030,587	(1)	(1)	(1)	(1)
N. Y., Chic. & St. L.	1921	572	343,602	345,618	1,294	10,046	63.7	528,438	198,579	123	36	22.5	47
	1920	572	389,970	392,481	1,751	9,617	60.4	548,551	221,814	105	51	32.7	18
Pere Marquette	1921	2,191	316,605	323,374	6,390	6,927	60.8	411,470	184,933	154	55	26.1	10
	1920	2,208	343,514	352,934	5,743	6,998	63.4	415,272	193,821	160	37	18.8	1
Pitts. & Lake Erie	1921	228	84,110	88,558	1,278	2,921	64.4	188,295	100,152	62	16	20.9	15
	1920	225	158,337	173,579	1,699	5,240	64.8	374,626	222,597	67	9	11.6	1
Wabash	1921	2,418	569,159	596,887	5,977	14,399	65.5	795,361	330,308	279	63	18.5	33
	1920	2,418	663,492	678,240	8,171	15,108	68.1	868,143	404,302	271	66	19.6	...
Ohio-Indiana-Allegheny Region:													
Baltimore & Ohio	1921	5,185	1,595,638	1,679,742	127,242	36,933	60.8	2,344,405	1,112,369	1,016	367	26.5	269
	1920	5,154	2,104,154	2,358,514	125,863	46,679	57.1	3,387,910	1,687,853	1,111	212	16.0	4
Central of N. J.	1921	679	276,838	307,914	38,607	5,532	58.6	369,752	179,013	213	44	17.3	9
	1920	679	337,289	366,019	35,710	6,478	58.2	458,835	232,966	202	63	23.7	2
Chicago & Eastern Ill.	1921	1,129	214,180	215,288	3,251	4,783	61.8	291,245	143,427	120	52	30.2	41
	1920	1,131	345,306	355,362	5,183	7,265	55.7	508,507	254,673	145	43	23.1	...
C., C., C. & St. L.	1921	2,387	605,479	624,358	2,615	15,721	56.4	1,002,159	433,594	323	125	28.0	66
	1920	2,304	770,375	801,876	403	17,790	53.7	1,257,610	561,970	313	103	24.8	...
Elgin, Joliet & Eastern	1921	839	97,854	109,078	7,906	2,721	62.9	213,522	113,717	99	9	8.0	29
	1920	838	149,939	169,229	12,396	4,115	66.6	321,429	180,021	94	11	10.6	...
Long Island	1921	395	41,451	45,837	8,304	467	58.9	26,503	9,938	40	8	17.5	1
	1920	395	42,541	51,934	8,787	498	62.9	26,410	10,521	35	7	16.0	...
Pennsylvania System	1921	10,876	4,044,305	4,390,669	325,821	95,770	61.4	6,427,645	3,076,759	2,547	948	27.1	636
	1920	10,836	5,214,166	5,840,489	474,806	116,127	58.1	8,481,241	4,356,052	2,246	832	27.0	23
Phila. & Reading	1921	1,119	542,251	603,259	71,888	11,916	58.5	830,201	418,766	375	68	15.4	157
	1920	1,119	734,209	852,430	116,867	16,599	60.3	1,202,654	656,515	302	79	20.6	3
Pocahontas Region:													
Chesapeake & Ohio	1921	2,548	622,469	685,709	18,801	16,135	55.1	1,248,387	653,243	465	95	16.9	133
	1920	2,527	891,078	996,114	32,552	22,720	55.5	1,843,469	995,366	411	128	23.8	...
Norfolk & Western	1921	2,222	641,109	779,966	31,452	16,050	59.1	1,164,909	611,263	593	108	15.4	210
	1920	2,189	867,472	1,082,957	37,360	20,383	55.1	1,691,834	905,940	494	182	26.9	58
Southern Region:													
Atlantic Coast Line	1921	4,918	635,531	640,805	11,354	14,050	60.0	739,231	261,953	303	109	26.4	32
	1920	4,888	703,057	705,116	12,328	14,196	59.1	805,140	314,392	284	134	32.1	...
Central of Georgia	1921	1,908	189,086	190,362	3,426	3,993	70.7	195,883	82,526	112	23	17.0	16
	1920	1,913	230,786	232,988	3,018	4,079	60.9	249,466	114,205	110	22	16.5	...
I. C. (inc. Y. & M. V.)	1921	6,151	1,560,994	1,567,357	33,984	38,837	60.8	2,491,578	1,119,413	741	93	11.2	12
	1920	6,151	2,088,518	2,099,596	42,385	43,880	57.6	3,091,576	1,440,688	709	109	13.3	3
Louisville & Nashville	1921	5,021	1,272,393	1,336,566	44,607	20,913	59.7	1,330,362	609,008	568	94	14.1	74
	1920	5,026	1,611,862	1,759,307	60,039	25,458	59.0	1,723,314	835,851	543	125	18.7	1
Seaboard Air Line	1921	3,537	389,139	395,778	6,508	8,451	68.2	432,098	168,736	175	81	31.8	...
	1920	3,537	444,562	453,942	7,356	8,886	63.2	507,204	210,819	169	81	32.3	...
Southern Ry.	1921	6,942	1,152,759	1,175,434	29,531	24,592	65.3	1,289,842	511,503	871	243	21.8	33
	1920	6,942	1,412,503	1,451,557	38,825	25,745	63.8	1,520,557	684,552	934	184	16.5	4
Northwestern Region:													
C. & N. W.	1921	8,378	1,333,729	1,361,832	18,518	26,268	62.3	1,513,174	677,804	808	239	22.8	110
	1920	8,319	1,726,404	1,755,848	27,073	29,735	58.2	1,841,320	916,800	689	252	26.8	...
C., M. & St. P.[2]	1921	11,027	1,363,980	1,399,779	59,455	29,560	62.0	1,695,672	746,737	850	227	21.0	151
	1920	10,603	1,436,128	1,479,958	74,777	29,866	62.7	1,720,832	775,829	658	357	35.2	13
C., St. P., M. & O.	1921	1,726	271,962	282,203	12,193	4,592	68.2	243,538	100,684	147	67	31.4	38
	1920	1,726	308,504	325,202	15,408	4,995	66.5	283,752	124,668	158	47	22.9	26
Great Northern	1921	8,162	727,208	751,083	26,582	17,020	69.0	966,985	451,802	615	181	22.7	195
	1920	8,171	915,323	938,698	38,364	20,074	64.6	1,208,471	576,836	527	237	31.0	77
M., St. P. & S. Ste. M.	1921	4,359	400,264	426,569	7,267	8,147	70.3	406,749	182,477	342	62	15.3	28
	1920	4,227	531,113	561,342	7,607	10,006	62.4	526,749	233,054	332	80	19.4	59
Northern Pacific	1921	6,419	686,744	714,103	43,559	17,516	68.4	993,059	454,834	556	157	22.0	87
	1920	6,405	853,544	901,790	63,416	19,971	60.9	1,231,940	564,247	540	144	21.0	34
Oreg.-Wash. R. R. & Nav.	1921	2,150	207,001	231,957	27,988	4,588	68.5	267,815	125,184	128	34	21.0	4
	1920	2,146	209,306	228,251	25,654	4,482	75.4	253,362	129,928	109	44	28.9	...
Central Western Region:													
Atch., Top. & Santa Fe	1921	9,805	1,338,960	1,400,145	60,166	32,317	61.8	1,847,455	674,947	766	177	18.8	143
	1920	9,708	1,742,650	1,832,688	89,423	37,818	56.7	2,360,899	923,581	673	238	26.1	15
Chicago & Alton	1921	1,010	317,745	323,385	6,343	6,367	58.9	400,629	196,872	103	35	25.5	12
	1920	1,010	352,898	358,515	5,640	6,499	56.8	433,761	191,807	101	54	34.8	2
Chic., Burl. & Quincy	1921	9,326	1,394,149	1,458,918	72,016	33,271	62.8	2,000,783	930,219	652	292	31.0	71
	1920	9,304	1,761,503	1,845,083	86,921	39,109	56.9	2,617,498	1,232,270	685	229	25.0	...
Chic., Rock Isl. & Pacific	1921	7,662	1,239,810	1,259,219	10,760	24,307	63.4	1,372,512	578,556	500	162	21.6	60
	1920	7,663	1,355,938	1,378,201	18,317	25,000	64.2	1,424,495	633,347	471	226	32.4	14
Denver & Rio Grande Wes'n.	1921	2,593	201,968	244,772	47,523	3,941	67.0	226,946	107,227	254	59	18.9	34
	1920	2,593	301,961	379,000	73,588	5,922	67.6	359,651	184,393	234	73	23.8	...
Oregon Short Line	1921	2,367	328,507	340,702	21,486	6,917	62.6	435,740	197,437	164	63	27.8	28
	1920	2,359	352,238	369,427	27,153	7,231	64.7	456,626	226,378	167	66	28.4	6
Southern Pacific	1921	6,974	985,516	1,125,663	193,101	26,253	63.1	1,526,166	599,088	573	200	25.9	23
	1920	6,983	1,232,298	1,405,738	247,075	28,141	59.1	1,739,880	706,614	558	159	22.2	1
Union Pacific	1921	3,665	865,395	870,465	48,022	23,454	72.4	1,264,726	549,324	386	143	27.1	45
	1920	3,614	1,195,314	1,219,306	58,367	25,870	64.4	1,556,233	710,040	405	151	27.2	23
Southwestern Region:													
Gulf, Colo. & Santa Fe	1921	1,895	206,211	211,392	4,662	4,974	64.0	290,412	127,136	124	31	20.0	39
	1920	1,895	279,164	282,901	8,320	6,005	61.8	355,194	155,267	103	40	28.0	4
Missouri, Kans. & Tex.	1921	1,709	220,754	221,056	5,695	5,512	59.2	323,048	126,190	135	44	24.6	62
	1920	1,710	329,955	330,170	10,421	6,265	50.7	421,167	163,204	126	59	32.0	7
Mo., Kans. & Tex. of Tex.	1921	1,740	209,973	210,096	3,608	4,052	57.7	244,156	93,961	90	40	30.5	12
	1920	1,740	287,567	292,518	3,915	5,085	55.4	322,524	128,874	104	36	25.5	7
Missouri Pacific	1921	7,264	980,403	988,861	27,892	22,489	66.1	1,294,703	578,390	378	185	32.9	12
	1920	7,263	1,176,245	1,184,356	39,935	23,724	63.6	1,452,874	670,365	386	192	33.3	...
St. Louis-San Francisco	1921	4,761	698,597	707,887	13,894	11,759	61.0	688,355	285,966	355	105	22.8	32
	1920	4,757	900,681	911,598	19,159	13,785	61.7	840,526	372,913	371	107	22.3	2
Southern Pacific Lines (in Texas and Louisiana)	1921	3,710	592,847	593,587	4,874	10,575	57.6	671,873	278,233	208	96	31.5	6
	1920	3,657	701,853	709,851	8,897	12,610	58.3	808,050	352,510	202	89	30.6	1
Texas & Pacific	1921	1,953	291,815	291,815	2,231	5,833	58.3	345,339	126,399	116	85	42.1	2
	1920	1,947	388,845	388,845	8,798	7,446	64.2	429,720	177,880	132	56	29.8	...

[1]Data not available. [2]Includes Chicago, Terre Haute & Southeastern from July 1, 1921, only.

Compared with December, 1920, for Roads with Annual Operating Revenues above $25,000,000.

Region, road and year	Average number of freight cars on line daily: Home	Foreign	Total	Per cent unserviceable	Stored	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car-miles per car-day	Net-ton miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles, including locomotive and tender	Passenger service: Train-miles	Passenger-train car-miles
New England Region:														
Boston & Albany.....1921	3,574	4,489	8,063	6.8	1,208	919	355	20.3	361	27.4	7,398	246	318,164	2,099,721
1920	1,536	5,862	7,398	7.2	426	908	389	25.5	504	32.2	9,464	237	329,087	2,102,001
Boston & Maine.....1921	16,886	13,216	30,102	19.9	585	1,035	405	20.6	238	17.5	2,904	172	822,864	4,496,145
1920	11,064	22,001	33,065	10.8	455	1,044	474	26.2	293	16.6	3,929	...	876,925	4,758,926
N. Y., N. H. & H.....1912	24,144	15,011	39,155	22.0	3,031	1,195	483	20.5	174	12.7	3,471	185	1,048,754	6,517,584
1920	14,836	23,860	38,696	11.0	316	1,147	510	25.1	202	12.4	3,982	206	1,118,228	7,026,114
Great Lakes Region:														
Delaware & Hudson.....1921	10,075	6,132	16,207	8.7	607	1,590	772	32.9	558	28.4	10,189	207	193,600	949,942
1920	5,971	11,379	17,350	7.3	....	1,622	853	36.3	663	28.7	13,068	216	196,783	1,013,688
Del., Lack. & Western....1921	18,391	7,639	26,030	11.3	....	1,552	684	23.9	433	27.4	11,350	210	504,281	3,612,686
1920	10,977	12,601	23,578	6.2	....	1,607	770	29.0	620	33.3	14,670	...	501,085	3,630,538
Erie (inc. Chic. & Erie)..1921	40,309	16,069	56,378	20.6	8,888	1,767	785	26.7	398	23.5	9,928	169	685,851	4,866,944
1920	16,364	34,804	51,268	7.8	....	1,831	915	32.1	636	30.4	14,439	176	704,104	4,877,610
Lehigh Valley.....1921	31,046	8,534	39,580	13.1	3,827	1,577	717	28.1	330	19.1	5,122	171	317,773	2,388,424
1920	14,709	18,017	32,726	11.3	1,332	1,664	827	32.9	527	25.9	12,053	196	385,265	2,855,197
Michigan Central.....1921	21,148	12,840	33,988	16.8	4,331	1,485	555	20.5	249	19.8	4,626	144	595,024	5,259,953
1920	9,189	18,183	27,372	7.7	....	1,601	699	25.5	401	25.8	5,988	...	631,779	5,443,519
New York Central.....1921	86,499	45,414	131,913	21.1	23,052	1,888	800	24.6	337	21.9	7,849	138	2,427,412	19,182,840
1920	44,006	99,717	143,723	8.1	3,756	1,948	910	30.8	456	25.3	11,601	...	2,461,578	18,907,494
N. Y., Chic. & St. L.....1921	5,518	4,613	10,131	6.0	2,939	1,538	578	19.8	632	50.2	11,202	124	88,284	501,424
1920	2,819	7,057	9,876	8.1	173	1,407	569	23.1	725	52.0	12,511	...	89,839	527,783
Pere Marquette.....1921	11,578	9,121	20,699	17.2	2,000	1,299	584	26.7	288	17.8	2,722	149	279,953	1,485,291
1920	6,389	12,510	18,899	8.3	....	1,209	564	27.7	331	18.8	2,832	197	311,724	1,584,792
Pitts. & Lake Erie.....1921	19,614	7,823	27,437	45.6	1,395	2,239	1,191	34.3	118	5.3	14,175	92	109,812	571,628
1920	5,492	19,744	25,236	11.1	434	2,366	1,406	42.5	285	10.3	31,976	85	116,653	608,805
Wabash 1921	13,347	9,761	23,108	12.5	801	1,397	580	22.9	461	30.7	4,407	175	530,294	2,850,165
1920	7,993	17,907	25,900	9.5	234	1,308	609	26.8	504	27.6	5,394	207	581,558	3,071,913
Ohio-Indiana-Allegheny Region:														
Baltimore & Ohio.....1921	70,671	26,937	97,608	12.3	23,081	1,469	697	30.1	368	20.1	6,921	192	1,434,318	9,004,067
1920	41,419	68,209	109,628	6.5	4,193	1,610	802	36.2	497	24.0	10,565	...	1,397,897	9,079,701
Central of N. J.....1921	20,078	7,205	27,283	8.3	6,828	1,336	647	32.4	212	11.2	8,511	200	332,528	1,744,580
1920	9,586	16,327	25,913	17.3	97	1,360	691	36.0	290	13.9	11,072	...	322,976	1,452,762
Chicago & Eastern Ill....1921	17,525	2,964	20,489	12.6	4,579	1,360	670	30.1	226	12.2	4,098	189	227,371	1,518,131
1920	8,778	10,064	18,842	11.4	....	1,473	738	35.1	436	22.3	7,264	...	240,912	1,550,156
C., C., C. & St. L.....1921	19,455	17,135	36,590	10.3	12,206	1,655	716	27.6	382	24.6	5,861	148	700,274	4,437,906
1920	10,019	27,810	37,829	10.3	2,792	1,632	729	31.6	479	28.3	7,572	...	818,701	4,798,910
Elgin, Joliet & Eastern..1921	9,635	4,296	13,931	8.1	860	2,182	1,162	41.8	263	10.0	4,370	146	(a)	(a)
1920	9,091	6,092	15,183	9.1	200	2,144	1,201	43.7	382	13.1	6,933	...	(a)	(a)
Long Island 1921	2,200	3,447	5,647	4.9	279	639	240	21.3	57	4.5	813	387	192,853	1,083,120
1920	926	4,042	4,968	3.7	....	621	247	21.1	68	5.1	860	...	192,040	1,082,047
Pennsylvania System.....1921	217,643	62,439	280,082	11.8	62,536	1,589	761	32.1	354	18.0	9,125	135	5,181,281	34,719,856
1920	136,923	134,769	271,692	3.9	12,507	1,627	835	37.5	517	23.7	12,968	...	5,487,578	36,755,745
Phila. & Reading.....1921	26,963	11,167	38,130	4.3	3,498	1,531	772	35.1	354	17.2	12,071	205	494,969	2,309,636
1920	13,673	25,569	39,242	6.8	....	1,638	894	39.6	540	22.6	18,930	...	532,345	2,434,437
Pocahontas Region:														
Chesapeake & Ohio.....1921	43,427	10,026	53,453	9.8	5,336	2,006	1,049	40.5	394	17.7	8,270	151	449,676	2,562,531
1920	19,536	25,192	44,728	8.1	....	2,069	1,117	43.8	718	29.5	12,705	...	451,547	2,494,295
Norfolk & Western.....1921	35,504	6,045	41,549	4.6	5,388	1,817	953	38.1	475	21.1	8,874	204	419,477	2,691,479
1920	21,463	17,279	38,742	6.6	....	1,950	1,044	44.4	754	30.8	13,352	...	430,194	2,943,556
Southern Region:														
Atlantic Coast Line.....1921	23,050	8,158	31,208	14.2	....	1,163	412	18.6	271	24.2	1,718	137	820,323	5,549,576
1920	14,569	18,307	32,876	9.7	....	1,145	447	22.1	308	23.6	2,075	...	863,623	6,047,923
Central of Georgia.....1921	4,582	2,392	6,974	16.8	250	1,036	436	20.7	382	26.1	1,395	183	321,079	1,724,710
1920	2,246	4,597	6,843	12.5	....	1,081	495	28.0	538	31.6	1,926	...	328,229	1,758,573
I. C. (inc. Y. & M. V.)..1921	47,454	19,551	67,005	6.6	11,735	1,596	717	28.8	539	30.7	5,870	159	1,452,893	8,572,552
1920	22,139	43,049	65,188	4.7	2,083	1,480	690	32.8	713	37.7	7,555	...	1,438,350	8,521,696
Louisville & Nashville....1921	41,744	10,828	52,572	16.5	94	1,046	479	29.1	374	21.5	3,913	191	1,042,556	6,074,289
1920	21,833	28,825	50,658	16.9	81	1,069	519	32.8	532	27.5	5,364	...	958,640	5,791,304
Seaboard Air Line.....1921	12,485	7,642	20,127	29.0	....	1,110	434	20.0	270	19.9	1,539	190	598,098	3,669,004
1920	7,189	11,722	18,911	12.0	....	1,141	474	23.7	360	24.0	1,923	196	579,845	3,445,741
Southern Ry.....1921	40,182	20,114	60,296	10.5	8,769	1,118	444	20.8	274	20.2	2,377	217	1,330,741	7,941,775
1920	21,370	36,460	57,830	3.9	....	1,076	486	26.6	382	22.5	3,181	...	1,495,400	9,479,854
Northwestern Region:														
C. & N. W.....1921	47,645	21,650	69,295	6.5	6,000	1,135	508	25.8	316	19.6	2,610	190	1,638,785	10,054,538
1920	36,361	36,545	72,906	8.6	3,000	1,067	631	30.8	406	22.6	3,555	...	1,761,020	11,038,969
C., M. & St. P.....1921	47,703	21,312	69,015	16.9	....	1,243	547	25.3	349	22.3	2,184	196	1,499,538	9,015,414
1920	29,456	34,009	63,465	8.0	....	1,198	540	26.0	394	24.2	2,360	...	1,497,180	9,422,770
C., St. P., M. & O.....1921	3,493	10,043	13,536	11.9	1,194	895	370	21.9	240	16.0	1,881	202	313,115	1,812,703
1920	2,604	10,078	12,682	12.1	1,389	920	404	25.0	317	19.1	2,330	...	325,798	1,975,014
Great Northern.....1921	45,449	8,277	53,726	8.5	....	1,330	621	26.5	271	14.8	1,786	196	997,303	5,959,940
1920	32,218	24,910	57,128	8.7	....	1,320	630	28.7	326	17.6	2,277	...	1,009,823	6,293,410
M., St. P. & S. Ste. M...1921	19,969	4,334	24,303	11.3	2,055	1,016	456	22.4	242	15.4	1,350	127	440,206	2,529,464
1920	12,602	13,714	26,316	6.5	2,917	992	439	23.3	286	19.7	1,779	160	439,078	2,799,120
Northern Pacific.....1921	36,756	10,671	47,427	8.1	4,602	1,446	662	26.0	309	17.4	2,286	152	844,762	5,478,459
1920	27,400	19,040	46,440	8.4	1,472	1,443	661	28.3	392	22.8	2,842	163	860,632	5,714,697
Ore.-Wash. R. R. & Nav..1921	5,512	4,647	10,159	2.0	2,690	1,294	605	27.3	397	21.3	1,878	261	255,855	1,742,137
1920	3,334	5,407	8,741	3.2	3,436	1,210	621	29.0	479	21.9	1,953	...	262,242	1,836,763
Central Western Region:														
Atch., Top. & Santa Fe...1921	51,376	11,655	63,031	7.5	18,135	1,380	504	20.9	345	26.8	2,220	166	1,731,612	13,183,189
1920	36,350	31,027	67,377	7.6	6,551	1,355	530	24.4	442	32.0	3,069	180	2,026,571	15,308,758
Chicago & Alton.....1921	10,203	4,886	15,089	3.4	1,658	1,261	620	30.9	421	23.1	6,286	210	291,476	1,682,760
1920	4,623	10,966	15,589	4.0	....	1,229	544	29.5	397	23.6	6,125	235	312,174	1,746,617
Chic., Burl. & Quincy....1921	49,123	16,306	65,429	7.6	4,600	1,435	657	28.0	459	26.1	3,218	180	1,540,632	9,940,609
1920	29,208	42,459	71,667	7.2	....	1,486	700	31.5	555	30.9	4,272	200	1,549,278	10,321,825
Chic., Rock Isl. & Pacific.1921	32,923	15,363	48,286	9.4	9,824	1,107	467	23.8	387	25.6	2,436	199	1,312,454	7,556,499
1920	18,647	29,534	48,181	9.4	7,748	1,051	467	25.3	424	26.1	2,666	...	1,349,241	8,194,447
Denver & R. G. Western.1921	13,267	2,728	15,995	8.7	3,582	1,124	531	27.2	216	11.9	1,334	253	228,903	1,567,612
1920	9,150	6,866	16,016	6.0	500	1,191	611	31.1	371	17.6	2,294	...	230,424	1,604,026
Oregon Short Line.....1921	7,339	5,810	13,149	4.5	1,915	1,326	601	28.5	484	27.1	2,691	157	285,034	2,070,611
1920	5,828	8,058	13,886	4.5	3,874	1,296	643	31.3	526	26.0	3,096	177	300,447	2,169,163
Southern Pacific.....1921	22,739	19,741	42,480	5.3	5,214	1,549	607	22.8	455	31.5	2,771	167	1,328,216	10,685,292
1920	14,283	27,008	41,291	6.4	....	1,412	573	25.1	552	37.1	3,264	180	1,596,991	12,420,580
Union Pacific.....1921	16,842	7,443	24,285	8.4	5,451	1,461	635	23.4	730	43.0	4,835	172	880,397	7,022,161
1920	8,862	16,775	25,637	11.5	3,114	1,302	594	27.4	893	50.6	6,338	201	930,948	7,808,403
Southwestern Region:														
Gulf, Colo. & Santa Fe..1921	7,616	3,993	11,609	3.3	2,230	1,408	617	25.6	353	21.6	2,165	153	195,967	1,144,143
1920	3,267	7,656	10,923	4.0	1,876	1,272	556	25.9	459	28.7	2,644	...	213,483	1,356,832
Missouri, Kans. & Tex....1921	7,577	6,577	14,154	6.5	4,960	1,463	572	22.9	288	21.2	2,381	151	272,244	1,999,193
1920	4,808	10,221	15,029	7.8	1,980	1,276	495	26.1	350	26.5	3,078	...	304,436	2,251,407
Mo., Kans. & Tex of Tex.1921	328	12,589	12,917	5.5	3,340	1,163	447	23.2	235	17.5	1,742	178	270,110	1,668,498
1920	302	12,951	13,253	2.9	225	1,122	448	25.3	314	22.3	2,389	...	293,097	1,975,329
Missouri Pacific.....1921	34,057	19,063	53,120	9.0	6,134	1,321	590	25.7	351	20.7	2,569	171	946,948	5,594,046
1920	16,758	37,363	54,121	5.2	1,089	1,235	570	28.3	400	22.2	2,977	...	969,686	5,812,083
St. Louis-San Francisco..1921	21,118	7,923	29,041	9.2	....	985	409	24.3	318	21.4	1,938	214	763,171	4,316,563
1920	11,246	22,977	34,223	4.1	....	933	414	27.1	352	21.1	2,529	251	799,372	4,711,625
Southern Pacific Lines (in Texas and Louisiana)..1921	9,180	17,093	26,273	12.8	1,859	1,133	469	26.3	342	22.5	2,419	150	539,166	3,333,121
	3,623	23,823	27,446	5.6	....	1,151	502	28.0	414	25.4	3,109	162	550,210	3,790,715
Texas & Pacific.....1921	5,972	6,664	12,636	16.8	....	1,183	433	21.7	323	25.5	2,088	173	299,122	1,975,651
1920	2,752	11,978	14,730	7.9	....	1,105	457	23.9	390	25.4	2,948	188	326,982	2,209,336

[a] No passenger-train service. NOTE.—Compiled by the Bureau of Statistics of the Interstate Commerce Commission, subject to revision.

Snow and Ice Paralyze Traffic in North Central States

One train wreck causing the death of five people, property damage aggregating millions of dollars, telegraph, rail communication paralyzed and severe floods have resulted from a snow, sleet and rain storm which passed over the north central states on February 21. Train service in northeastern Wisconsin and northern Michigan was at a standstill for two and one-half days. The storm began with a heavy rain, followed by sleet and blizzards, only to turn to sleet again, and many passenger trains on the Chicago, Milwaukee & St. Paul, the Chicago & North Western and other roads in the storm-bound area had to be annulled. Both passenger and freight trains on these roads were stalled and service was demoralized. Snow plows had difficulty in clearing the tracks. On the Great Northern, a rotary snow plow near Montrose, Minn., about 40 miles west of Minneapolis, collided with passenger train No. 10 eastbound, drawn by two engines, causing the death of five trainmen and the injury of eleven passengers. Traffic over most of the roads except in northeastern Wisconsin, was resumed by February 27.

Railway Returns for December and for Twelve Months

The Class I railroads of the United States in 1921, had a net operating income of $615,625,619, which was at the annual rate of return of 3.31 per cent on their tentative valuation, according to a statement issued by the Association of Railway Executives. The net operating income hardly more than covered their interest charges and rentals alone, these items amounting to $603,000,000 in 1920 and somewhat greater than that in 1921. Fifty-four railroads, operating 26,022 miles, had operating deficits in 1921, totaling $29,114,000.

Operating revenues in 1921 totaled $5,569,888,000, a decrease of 10.6 per cent as compared with 1920. Operating expenses were $4,602,425,000, a decrease of 21.1 per cent. Of this $2,019,985,000 was spent for maintenance, 23.1 per cent less than in 1920.

For December, the net operating income was $51,510,478, which would be at the annual rate of return of 3.44 per cent. Operating revenues were $425,044,000, a reduction of 22.8 per cent from 1920, and operating expenses $348,973,000, a decrease of 31.7 per cent. The Detroit, Toledo & Ironton was again late in filing its report.

The December net lacked $38,412,522 of being a 6 per cent return. Expenditures for maintenance, $142,159,296, were 34.8 per cent less than in December, 1920.

Net operating income for 1921 of the railroads in the Eastern district aggregated $271,820,000 compared with a deficit of $82,659,000 in 1920. This would be at the annual rate of return of 3.31 per cent on their tentative valuation, but $220,240,000 below a 6 per cent return. In the Southern district net operating income was $56,995,000 compared with $18,443,720, the year before. This was equivalent to an annual return of 2.60 per cent. The Western district had a net operating income of $286,811,000 (compared with $123,584,000 in 1920), which would be at the annual rate of return of 3½ per cent.

National Railway Service Corporation Asks $100,000,000 Loan

An application to the Interstate Commerce Commission for a loan of $100,000,000 from the $300,000,000 revolving fund was filed on February 23 by S. Davies Warfield as president of the National Railway Service Corporation, "to aid the service corporation in financing equipment trust certificates for the purchase of all or any part of the 300,000 bad order freight cars of the country, and for the further purchase of new equipment for the railroads."

The National Railway Service Corporation was organized by the National Association of Owners of Railroad Securities and has assisted in financing equipment purchases for several railroads in connection with government loans. Recently the association asked the commission to approve a plan for pooling railroad equipment under its direction. Most of the $300,000,000 fund has already been loaned but the balance is increased from time to time by repayments and interest. The loan is requested to be made in instalments, presumably as funds become available. Under the law no new loans from the fund may be made on applications filed later than February 28.

"Through the financial plans of the service corporation, as laid before the commission," a press notice says, "large sums of money will be liberated to the carriers, through the purchase of cars standing unfit for use on their tracks; in addition, the money will be provided for rebuilding these cars to meet transportation requirements upon the return of normal conditions. This will give employment to thousands in opening up railroad and car manufacturing and supply shops. The application states that it is submitted that the loan proposed is indispensable to a comprehensive and adequate program for the prompt rehabilitation and rebuilding of railway equipment on terms which the carriers can adopt; that it is made for the acquisition and rebuilding of bad order equipment which, when rebuilt, will be made available, by lease or sale, to any railroad. The National Railway Service Corporation operates without profit in the public interest. The service corporation will issue its deferred and prior lien certificates in the manner heretofore adopted in financing the carriers. The prior lien certificates will be sold; the deferred lien certificates to be taken by the government."

The application states that $50,000,000 is desired for the acquisition and rebuilding of unserviceable equipment for lease or sale to the railroads when rebuilt, and $50,000,000 for new equipment. The funds derived from the loan are to be used to cover 25 to 50 per cent of the appraised value of the equipment as rebuilt and as part payment of 40 per cent on the cost of new equipment.

B. R. & P. Proposes a New Economy

The Buffalo, Rochester & Pittsburgh, in its last efficiency circular calls on employees to suggest new ways of economizing, and promises to make suitable recompense. The circular says, in part:

"In the belief that the employees as well as the railroads are vitally interested in every possible economy, the Buffalo, Rochester & Pittsburgh has authorized all departments to place in effect a suggestion bureau to receive and consider suggestions of economies made by the employees. The company has no heart in laying off men, but realizes the demand of an economic force far greater than its desires. We feel that much good will result from an exchange of ideas on economic practices. It may be that the suggestion bureau will be the means of avoiding conditions which have been forced on some other railroads. As it must be a matter of some satisfaction for an employee to realize that he is not only a potent factor in economic production, but personally responsible for creating employment for his fellow men, the company will make suitable cash award for every suggestion which has an economic value and in addition to such award will use the entire amount saved by such suggestion to hire additional employees.

"All suggestions will be handled by a departmental secretary, who will submit the suggestions, with author's name eliminated and nothing to identify it except a serial number, to the bureau for consideration. A suggestion having economic merit will be paid for in accordance with its value and the actual monthly saving converted into additional employment. In addition to cash and increased labor award the name of the suggestor will be displayed on the departmental bulletin board, together with the suggestion made."

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—F. M. Nellis, 165 Broadway, New York City. Next meeting, May 9-12, 1922, Hotel Washington, Washington, D. C. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—J. F. Gettrust, The Ashton Valve Company, 318 W. Washington St., Chicago. Meeting with Air Brake Association.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, Supervisor of Demurrage and Storage, C. & N. W. Ry., Chicago.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—L. A. Stone, C. & E. I. Ry., Chicago.

AMERICAN ASSOCIATION OF ENGINEERS.—C. E. Drayer, 63 E. Adams St., Chicago. Next railroad conference, March 13, Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 So. Michigan Ave., Chicago. Next meeting, June 28 and 29, Minneapolis, Minn.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, August 23-25, 1922, Kansas City, Mo.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, General Secretary, 75 Church St., New York, N. Y. Annual meeting, November, 1922.
Division I—Operating.
Freight Station Section (including former activities of American Association of Freight Agents). R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.
Medical and Surgical Section. J. C. Caviston, 75 Church St., New York.
Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association), J. C. Caviston, 75 Church St., New York, N. Y.
Telegraph and Telephone Section (including former activities of the Association of Railway Telegraph Superintendents). W. A. Fairbanks, 75 Church St., New York, N. Y. Next meeting, March 21-23, Richmond, Va. Annual meeting, September 20-22, 1922, Colorado Springs, Colo.
Safety Section. J. C. Caviston, 75 Church St., New York.
Division II—Transportation (including former activities of the Association of Transportation and Car Accounting Officers). G. W. Covert, 431 South Dearborn St., Chicago, Ill.
Division III—Traffic, J. Gottschalk, 143 Liberty St., New York.
Division IV—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Next convention, March 14-16, Chicago. Exhibit of National Railway Appliances Association, March 13-16.
Construction and Maintenance Section. E. H. Fritch.
Electrical Section. E. H. Fritch.
Signal Section (including former activities of the Railway Signal Association). H. S. Balliet, 75 Church St., New York, N. Y. Next meeting, March 13 and 14, Drake Hotel, Chicago. Annual meeting, June 14-16, 1922, Monmouth Hotel, Spring Lake, N. J.
Division V—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association). V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual convention, June 14-21, 1922, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.
Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association). V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.
Division VI—Purchases and Stores (including former activities of the Railway Storekeepers' Association). J. P. Murphy, General Store Keeper, New York Central, Collinwood, Ohio. Annual meeting, June 19-21, 1922, Hotel Traymore, Atlantic, N. J.
Division VII—Freight Claims (including former activities of the Freight Claim Association). Lewis Pilcher, 431 South Dearborn St., Chicago, Ill.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 17-19, 1922, Cincinnati, Ohio. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—J. F. Jackson, Central of Georgia, Savannah, Ga. Annual meeting, May 10-12, 1922, Denver, Colo.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Next convention, March 14-16, Chicago. Exhibit by National Railway Appliances Association, March 13-16.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—(See American Railway Association, Division 5.)

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—R. D. Fletcher, 1145 East Marquette Road, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY FOR STEEL TREATING.—W. H. Eiseman, 4600 Prospect Ave., Cleveland, Ohio. Annual convention, September 25-30, 1922, Detroit, Mich.

AMERICAN SOCIETY FOR TESTING MATERIALS.—C. L. Warwick, University of Pennsylvania, Philadelphia, Pa. Annual meeting, June 26-30, 1922, Chalfonte-Haddon Hall, Atlantic City, N. J.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—E. M. Chandler (acting secretary), 33 W. 39th St., New York. Regular meetings 1st and 3d Wednesdays in month, except July and August, 33 W. 39th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.
Railroad Division, A. F. Stuebing, Managing Editor, Railway Mechanical Engineer, Woolworth Bldg., New York. Next meeting, May 16, 1922, 29 W. 39th St., New York.

AMERICAN TRAIN DISPATCHERS' ASSOCIATION.—C. L. Darling, 1310-1311 Mallers Bldg., Chicago, Ill. Next convention, June 18, 1923, Chicago.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—George M. Hunt, Chemist, Forest Products Laboratory, Madison, Wis. Next meeting, January 23, 1923, New Orleans, La.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, Northern Pacific R. R., St. Paul, Minn. Next meeting, May 17-19, 1922, Montreal.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Thomas De Witt Cuyler (chairman), 61 Broadway, New York, N. Y.

ASSOCIATION OF RAILWAY SUPPLY MEN.—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—(See American Railway Association, Division I.)

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—(See American Railway Association, Division II.)

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—D. J. Higgins, American Valve & Meter Company, 332 S. Michigan Ave., Chicago. Meeting with convention of American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—W. A. Booth, 53 Rushbrooke St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, New Morrison Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—Thomas B. Koeneke, 604 Federal Reserve Bank Bldg., St. Louis, Mo. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2d Thursday in January, March, May, September and November, Hotel Iroquois, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—W. P. Elliott, Terminal Railroad Association of St. Louis, East St. Louis, Ill.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—D. B. Wright, 34th St. and Artesan Ave., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.

CINCINNATI RAILROAD CLUB.—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2d Tuesday in February, May, September and November.

EASTERN RAILROAD ASSOCIATION.—E. N. Bessling, 614 F St., N. W., Washington, D. C. Annual meeting May 11, 1922, Railroad Club of New York.

FREIGHT CLAIM ASSOCIATION.—(See American Railway Association, Division VII.)

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesday preceding 3d Friday in month, Room 1414, Manhattan Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, 702 E. 51st St., Chicago. Next annual meeting May 22-25, 1922, Auditorium Hotel, Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha Ave., Winona, Minn.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—C. W. Sullivan, Garlock Packing Co., 326 W. Madison St., Chicago. Meeting with International Railway Fuel Association.

MAINTENANCE OF WAY MASTER PAINTERS' ASSOCIATION.—E. E. Martin, Union Pacific R. R., Room No. 19, Union Pacific Bldg., Kansas City, Mo. Annual convention, 1922, Buffalo, N. Y.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York. Next convention, May 23-26, 1922, Hotel Sherman, Chicago.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.—(See A. R. A., Division V.)

MASTER CAR BUILDERS' ASSOCIATION.—See A. R. A., Division V.)

NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.—Warren C. Nixon, Western Tie & Timber Co., 905 Syndicate Trust Bldg., St. Louis, Mo.

NATIONAL ASSOCIATION OF RAILWAY AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Next convention, September 26, 1922, Detroit, Mich.

NATIONAL FOREIGN TRADE COUNCIL.—O. K. Davis, 1 Hanover Square, New York. Next convention, May 10-12, Philadelphia, Pa.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition, March 13-16, Coliseum, Chicago, at Convention of American Railway Engineering Association.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, excepting June, July, August and September.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3d Friday in month, except June, July and August, at 29 W. 39th St., New York.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2d Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual meeting, June 14, 1922, Cleveland, Ohio.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut Sts., Philadelphia, Pa. Annual dinner, February 1, Waldorf-Astoria, New York.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY DEVELOPMENT ASSOCIATION.—(See Am. Ry. Development Assn.)

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—R. J. Himmelright, 17 East 42nd St., New York. Meeting with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, C. & O. Ry., Richmond, Va. Next meeting, October 10-13, 1922, Pittsburgh, Pa.

RAILWAY SIGNAL ASSOCIATION.—(See A. R. A., Division IV., Signal Section.)

RAILWAY STOREKEEPERS' ASSOCIATION.—(See A. R. A., Division VI.)

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meeting with A. R. A., Division V.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York.

RAILWAY TREASURY OFFICERS ASSOCIATION.—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Annual convention, September 12-14, 1922, Cleveland, Ohio. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3d Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, Western Ry. of Ala., Atlanta, Ga.

SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—H. S. White, 9 N. Jefferson St., Chicago.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, Marine Trust Building, Buffalo, N. Y. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—Bruce V. Crandall, 14 E. Jackson Boulevard, Chicago. Regular meetings, 3d Monday each month except June, July and August.

Traffic News

President Harding has signed the bill, S. 621, extending the time in which shippers may file overcharge claims against the director general of railroads.

A. M. Groseclose, assistant traffic manager of the Northwestern Fruit Exchange, Seattle, Wash., has been promoted to traffic manager, succeeding J. Curtis Robinson, who has resigned.

Edward T. Sicardi, vice-president of the Union Tank Car Company, has been elected president of the company, succeeding William A. Barstow, who died at West Orange, N. J., on February 10.

The executives of the Eastern trunk lines, at a meeting in New York, on February 27, took action under which the legal departments of the roads will seek a review by the courts of the recent decision of the Interstate Commerce Commission, changing, in favor of the New England roads, the division of through rates on freight between New England and points west of the Hudson river.

Coal Production

The production of soft coal dropped back slightly during the week ended February 18, according to the weekly bulletin of the Geological Survey, but the output is estimated at 10,167,000 net tons, a decrease of 150,000 tons when compared with the week preceding. The bulletin says probably not less than 1,000,000 tons of the week's output went into storage.

New England Shippers Ask Removal of Baltimore and Philadelphia Port Difficulties

The Interstate Commerce Commission in a formal complaint filed on February 28 by the principal commercial organizations of New England is asked to issue an order requiring the railroads to establish and apply in the future rates for the transportation of export and import freight between the New England ports and Buffalo and points in differential territory which shall not exceed the corresponding rates contemporaneously maintained between the same territory and Philadelphia or Baltimore, or such other rates as the commission may deem reasonable and just. The complaint was filed by Clark & La Roe, the firm of which Edgar E. Clark, former chairman of the Interstate Commerce Commission, is a member, on behalf of the Maritime Association of the Boston Chamber of Commerce, the Associated Industries of Massachusetts, the New Bedford Board of Commerce and the chambers of commerce of New London, Portland and Providence.

The export and import rates between the New England ports and the large territory west of the Buffalo-Pittsburgh line are higher than the corresponding rates between Philadelphia and Baltimore and the same territory, which are constructed by deducting from the New York rates certain port differentials. The complaint says that by reason of these port differentials import and export freight has been diverted from the New England ports to Philadelphia and Baltimore and that during the months of September, October and November, 1921, Boston handled only 2 per cent of the grain exported from the Atlantic ports. It is stated that during the last 10 years the commission has made no formal review of this rate structure, that the limitations on the commission's power which existed when the situation was previously reviewed have been displaced by grants of power deliberately made by Congress to insure complete justice and preservation of the public interest, that the port differentials are entirely arbitrary, not reflecting differences in transportation conditions but had their origin in rate wars between individual railroads, and that Congress has declared its policy to encourage and develop water transportation and to foster both rail and water transportation not through the ports of Baltimore and Philadelphia, but through all ports of the United States.

Commission and Court News

Interstate Commerce Commission

The commission has suspended from March 25, until July 23, the operation of schedules published by the Missouri, Kansas & Texas which propose to increase rates on horses and mules from points in Missouri and Kansas to Memphis, New Orleans, and points taking same rates.

The commission has suspended from March 2, until June 30, the operation of schedules published by the Hocking Valley, which propose to increase the rates on brick and articles taking brick rates from points on the Hocking Valley Railway Company located in the so-called Hocking group in Ohio to points in Ohio and West Virginia.

Export Bill of Lading

The commission is in receipt of a communication from the United States Shipping Board, recommending certain amendments in part II of the uniform through export bill of lading prescribed by the commission, and has reopened the case for further hearing, such hearing to be limited to the reasonableness and propriety of the suggested provisions for inclusion in part II. The proceeding is assigned for hearing on March 4, at Washington. The commission is advised that considerable work has been done and expense incurred in the matter of printing supplies of the bills prescribed by it, and to avoid delay and confusion, it is provided in the order reopening the case that pending a hearing and decision the order entered on October 21, as modified by order of January 30, shall remain in full force and effect.

An early decision will be rendered. In the event that the further hearing shows that amendments such as are recommended are appropriate, the effective date of any order of the commission prescribing amendments will be such as to allow a reasonable time for making changes, due consideration being given to the supplies of unused printed forms on hand. The reopening of the proceeding does not affect the domestic bill of lading or the live stock contract.

State Commissions

The railroad commission of California, on February 17, instituted an investigation of the surcharge on the fares of passengers riding in sleeping and parlor cars, directing the railroads to show cause why it should not be eliminated in California. The hearing is scheduled for March 22.

The Railroad Commission of Georgia has ordered a general reduction in the freight rates on cotton, hay and grain, including grain products, to be put into effect on April 1. It is said that the new rates are based strictly on mileage and that the reduction amounts to 24 per cent on cotton and about 20 per cent on the other articles. The Commission is engaged in a general investigation of freight rates throughout the state and proposes to make reductions on other important commodities.

Court News

Safety Appliance Act; Steps on Pilot

The Interstate Commerce Commission's order of March 13, 1911, requires locomotive pilots to have one step at each side, but allows railroads to make additional safety rules not inconsistent with the order. A railroad bought an engine equipped with two steps on each side of the pilot, and, after using it for some time, took off the upper step, to comply with the order. In an action for negligent injury, alleging violation of the Safety Appliance Act, the Texas Court of Civil Appeals holds that the use of the two steps was not the adoption of an "additional rule," because it was inconsistent with the commission's order, and that negligence could not be alleged after the removal of one of the steps, because the company was then complying with the order.—Payne v. Albright (Tex. Civ. App.), 235 S. W., 288.

Assessment of Railroads for Street Improvements

The Minnesota Supreme Court holds that, prior to the enactment of Chapter 533, Laws 1919, making railway companies subject to special assessments for local improvements, a city had no power to assess the cost of street paving against a railroad corporation which has paid a gross earnings tax.—Chicago & N. W. v. City of Marshall (Minn.), 186 N. W. 137.

Statute Requiring Enginemen to Look Out

The Missouri Supreme Court holds, in an action for the death of an engineman in a crossing collision, where the evidence showed that the death resulted from the man's failure to comply with the state statute requiring him to see that a crossing is clear before entering on it, that the statute could not be abrogated by a custom making it the fireman's duty to look out on his side.—Frese v. Chicago, B. & Q. (Mo.), 235 S. W., 97.

Grantor of Right of Way Not Entitled to Damage From Overflow

Where a landowner has conveyed to a railroad a right of way over his farm, the Tennessee Supreme Court holds that he cannot recover damages to his farm by a fill and a culvert therein causing an overflow, no negligence of the railroad company in the construction of the track and culvert being shown.—Knott v. L. & N. (Tenn.), 234 S. W., 1003.

Action for Short Delivery Barred by Two-Year Limit

The Circuit Court of Appeals, Fifth Circuit, holds that an action brought January 28, 1921, by the holder of bills of lading for cotton, issued by the Director General in March, 1918, for short delivery, is barred by a provision in the bills requiring such suits to be brought within two years and one day after delivery or within two years and one day after the elapse of a reasonable time for delivery.—Leigh Ellis & Co. v. Davis, 276 Fed. 400.

Mere Presence of Johnson Grass Not Unlawful

The Oklahoma Supreme Court holds that the state statute prohibiting the introduction into the state and the sale of Johnson grass does not make the mere presence of such grass on premises unlawful, and mere evidence of the presence of such grass on a right of way, resulting in the death of a cow which strayed on the right of way and ate some, is not sufficient to give a cause of action to the owner of the cow.—McCormick v. Atchison, T. & S. F. (Okla.) 202 Pac. 302.

Delay in Calling for Baggage

The decisions are not in harmony as to what is a reasonable time after arrival of passenger's baggage to change the railroad's liability from that of carrier to warehouseman; but, following the decided weight of authority, the Minnesota Supreme Court holds that a delay from the afternoon of arrival until next morning in calling for it is unreasonable, so that, in case of its theft during the night, the railroad's liability is that of warehouseman only.—White v. Chicago, M. & St. P. (Minn.), 186 N. W. 145.

Excessive Damages Ground for New Trial

A verdict of $10,000 for personal injuries to a member of a gravel train crew, 56 years of age, based largely on the testimony of plaintiff that he earned $130 a month on a basis of 22½ cents an hour, which would oblige him to work 20 hours each day during a month of 30 days, was held by the Montana Supreme Court to be excessive, on the ground that "it would be an imputation on human intelligence to assume that a jury of reasonable men, after due deliberation, could believe that at his age he could constantly endure a strain so severe," combined with the fact that the plaintiff was, at the time of the trial, managing a restaurant business with little, if any, detriment to his activities from his injuries. The award of damages failed to commend itself to the judicial mind, and a new trial was awarded. Wegge v. Great Northern (Mont.), 203 Pac. 360.

Decisions Under the Federal Employers' Liability Act

The New York Appellate Division holds that one assisting in enlarging the pit of an old turntable, to install a larger one, was engaged in new construction and not in interstate commerce within the act.—Seaver v. Payne, 190 N. Y. Supp. 724.

The Illinois Supreme Court holds that a conductor of a freight train, carrying interstate cars, and engaged in interstate commerce, did not depart therefrom by turning his attention to a package containing dangerous explosives, brought to the car by a railroad policeman.—Moore v. Wabash (Ill.), 132 N. E. 814.

Automobile Turning Switch After Collision

A passenger train, at a crossing, in a town, struck an automobile and threw it against a switch stand, turning the switch and turning the train onto a side track, resulting in a collision. In affirming a judgment for the defendant on a directed verdict in an action for the death of a passenger resulting from the collision, the Indiana Appellate Court holds that, though the operators of the train should have anticipated the presence of the automobile on the crossing, they could not have anticipated the unusual result, so that their negligence was not the proximate cause of the passenger's injuries.—Engle v. Director General (Ind. App.), 133 N. E., 138.

Bill-of-Lading Time Limit for Suits

The Connecticut Supreme Court of Errors holds that the provision in the uniform bill of lading requiring suits to be brought within two years and one day after delivery or after the expiration of a reasonable time for delivery, is not unreasonable. It holds a finding of the trial court allowing six months as a reasonable time to be extremely liberal. The only change made by the decision of the Interstate Commerce Commission in Decker & Sons v. Commission, 55 I. C. C. 453 (1919), is that where the claim has not been settled before the beginning of the last six months of the two years and a day period, suit may be filed within six months from the date when the claim is definitely declined in writing. This ruling is not retrospective and does not affect bills of lading issued prior to December 2, 1919.—Humphrey-Cornell Co. v. Hines (Conn.), 115 Atl. 561.

Obtaining Possession Without Surrender of B. L.

If a consignee of goods knew that he was not entitled to their possession without surrender of the bill of lading, and that the railroad could not deliver the goods to him without a breach of its obligation to the shipper, and took possession knowing that the delivery to him was unauthorized, and that it would not have been made except for an innocent mistake of fact on the part of the railroad, the Massachusetts Supreme Court holds that a verdict against him for conversion, in an action by the railroad, was justified. His possession of the goods being unauthorized and wrongful, no demand was necessary before bringing the action. Even if the consignee believed that his receipt of the goods was justified because of the railroad's surrender of the actual possession, that belief was no defense.—N. Y. C. v. Freedman (Mass.), 133 N. E., 101.

Decisions Under Federal Employers' Liability Act

Foreign cars, brought into the state ten days before, were being moved within a yard, one for unloading, others for repairs. The Circuit Court of Appeals holds that a conductor of a drill crew, killed while shifting the cars, was not within the act.—Schauffele v. Director General, 276 Fed., 115.

A depot truckman assisting in moving a crate containing a planing mill, placed on the platform by another company for transportation out of the state, was held within the act.—Maher v. St. L.-S. F. (Mo. App.), 234 S. W., 1034.

The New York Appellate Division holds that a section man, killed about 3,000 ft. from his work by a backing locomotive, while walking toward his home during the noon hour, was not within the act, the accident not being in the course of his employment.—Pallocco v. L. V., 190 N. Y. Supp., 867.

The rule that a trackwalker assumes the risk of injury by trains operated in the usual manner is not changed by the federal Employers' Liability Act.—Davis v. P. & R., 276 Fed. 187.

Labor Board Decisions

Truck Driver Not Allowed to Assume Position of Bill Clerk

A truck driver of the American Railway Express Company at Nashville, Tenn., was given a trial as a bill clerk when his former position was abolished and on failing to qualify was dismissed. The employees maintained that he was appointed to the position and had not been given a fair opportunity to qualify. The Board held that the man had not been appointed and denied the claim of the employee.—*Decision No.* 683.

Employee, Incompetent, Not Entitled to Seniority Rights

An employee of the Atlantic Coast Line was assigned to a clerical position for a two-months' trial, during which he failed to perform the duties satisfactory to the carrier and was discharged. The employees contended that when he was released from this position he should have been given a place in the office or the right to exercise his seniority right to a position for which he was qualified. The Labor Board denied this petition.—*Decision No.* 684.

Pay Not Allowed for Vacations Not Granted

Several clerks employed in the Baltimore & Ohio freight station at Cambridge, Ohio, sought 15 days' pay in compensation for vacations which were not granted in 1920. The national agreement under which these employees were working does not contain any specific rule on the question of pay for time lost on account of sickness or for vacations. The Board held that the instructions of the Director of the division of operation of the United States Railroad Administration of January 30, 1920, which stated that "existing practices as to vacations and sick leave would remain in effect," applied in the case. The Board therefore decided that the employees were not entitled to compensation as, under the past practice, they were not granted vacations during 1920.—*Decision No.* 682.

Representation of Mechanical Supervisory Forces To Be Determined by Ballot

On May 4, 1921, a communication was addressed to A. P. Titus, general manager of the Chicago & Alton, by a committee representing the International Association of Railroad Supervisors of Mechanics requesting a conference for the purpose of negotiating rules and working conditions in accordance with the provisions of Decision No. 119. The carrier maintained that the organization did not represent a majority of the subordinate officials as designated by the Interstate Commerce Commission, and the organization submitted the question to the Labor Board, filing a petition bearing the signature of 90 foremen, authorizing it to represent them in agreement negotiations. The carrier also made a canvass of the foremen and 98 men, or 76 per cent of the supervisors of mechanics in the maintenance of way, locomotive and car departments signed a petition signifying their desire either to deal with the company direct or through a committee named in the petition. The organization took exception to the method followed by the carrier in canvassing the foremen. The board has decided that the method followed by both parties was inconsistent with the intent of Decision No. 119 and that a conference shall be held between representatives of the carrier, of the International Association of Railroad Supervisors of Mechanics, of any other organization representing mechanical foremen, and of 100 or more unorganized employees, for the purpose of arriving at a clear understanding as to the details of taking a ballot by which the foremen, by a majority vote, may designate their choice of representation. Separate forms of ballots for the foremen in the mechanical and bridge and building departments are specified.—*Decision No.* 629.

Foreign Railway News

Complicated Rulings on Eight-Hour Day in Spain

New rulings on the eight-hour day have gone into effect in Spain, according to the Railway Gazette (London). The underlying principle adopted is 8 hours of work per day with waiting time counted at only half of working time. The runs of train and engine men are to be arranged so as to provide an average of 48 hours per week on duty. In the case of station service, employees' time on duty when held but not working counts as only half-time in determining the eight-hour day. Overtime is paid for generally at time and a quarter, although occasionally at straight rates only.

The railways have notified the government that without some assistance in the shape of increased rates they will be unable to meet the burden imposed on them by the eight-hour day measures, and it is understood that the government is considering a provisional advance of funds, repayable by the railway companies in some form when the Transport bill, which is now in committee, becomes a law.

English Locomotive Coaling Plant

An interesting locomotive coaling plant of small capacity is that of the London & Northwestern at Willesden, London. This plant, which was built by the Mitchell Conveyor and Transporter Company, consists of a rotary tipple driven by a 10 h. p. electric motor, fitted with automatic chock for supporting the side of the car, and also two double chains at one end, which come in contact with the side of the car and prevent the wheels leaving the rails.

The coal falls into a reinforced concrete hopper of 12 tons

L. & N. W. Coaling Plant at Willesden

capacity. This hopper is 9 ft. deep and has an outlet 3 ft. by 2 ft. 7 in. at the bottom, which permits the coal to flow on to a circular feeder, 7 ft. 6 in. diameter, which feeds the coal into a skip. This circular feeder is rotated by a 3 h.p. motor fixed on the surface and connected to the feeder by a shaft and gearing.

The skip, when filled with one ton of coal is lifted by a 10 h.p. motor, the wire rope passing over a pulley on a weighted lever at the top of the plant, and so arranged that

when one ton of coal has been fed into the skip, the lever is depressed and the current to the feeder motor is cut off.

The fuelman, by actuating a switch on the stage, can then raise the loaded skip which tips itself automatically into a 5-ton steel hopper, at the bottom of which is a lever operated gate for distributing the coal onto the locomotive tenders.

Experimental Automatic Stop Device on Great Central, England

The automatic stop device illustrated herewith was developed on the Great Central (England). The principle on which it is based is well shown in the illustration, i. e., when the section is not clear the track instrument operates to place an obstruction in the way of the wooden prop on the locomotive mechanism. If the locomotive passes the track device in such a position, the prop, naturally, is knocked down with the result that the lever, held by the prop in a horizontal position, is released. This action brings about the application of the brakes. The engineman cannot release the brakes until he has placed another prop under the brake lever.

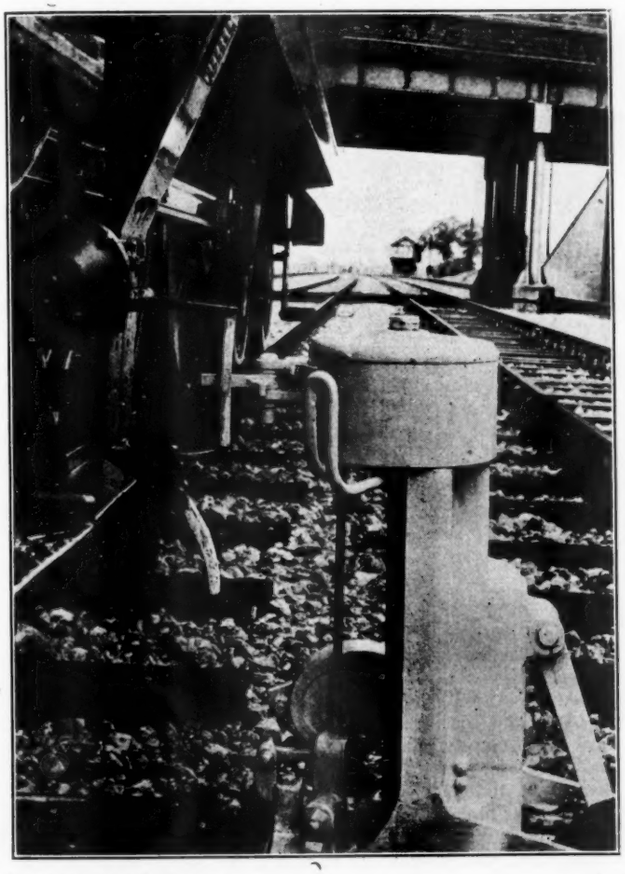


Photo by Kadel & Herbert

This device is used in connection with another, placed before it on the track, which gives an audible signal to the engineer when the track is not clear. Only if that signal is disregarded does the device illustrated here come into use.

Further Details on German Railway Strike

LONDON.

The strike of the Imperial Union of German Railway Officials ended on February 8, as a result of negotiations with the government. The German Railway Union and the railway unions in the south and west did not support the strike, but considerable inconvenience was caused in the north of Germany and particularly in Berlin, where on February 4, the municipal employees went out on strike, and the Berlin branch of the German Railway Union went out in sympathy with the strikers. The Imperial Union of Railway Officials is not a large body but it includes many indispensable employees and is affiliated with the Central Union of German Officials.

The reason for the strike was that the Imperial Union of German Railway Officials demanded a revision of salaries on a greatly increased basis, the previous increases and bonuses granted by the government having left the majority of the minor officials as they were. Objection was also made to two bills now before the Reichstag, namely, the Railway Finance Bill regulating their pay and pensions, and the Hours of Labor Bill, which they thought would endanger the eight-hour day. The Minister of Communications declined to negotiate with the men's leaders on the ground that officials have not the right to strike. The Berlin Municipal Employees went out on strike for the eight-hour day and the right to strike, and it was for this latter reason that the Central Union of German Officials gave its support. The General Federation of Trade Unions and the Railway Workers' Union condemned the strike but issued instructions to its members not to perform strike labor. The government's manifesto prohibiting the strike and imposing severe penalties only aggravated the situation, but a skeleton freight service was put into operation and was gradually extended with the help of the Technical Emergency Corps which was called out. The strike ended on February 8, after an agreement between representatives of the railway officials' union and the chancellor, in which the government agreed that there should be no dismissals en masse, that the Railwaymen's Hours of Labor Bill should be incorporated in a bill affecting all classes of labor, and that there should be an early revision upward of the scales of pay.

Government Railways Ruining Swiss Tourist Business

By Julian Grande

GENEVA.

The Swiss Federal Railways have decided to reduce their passenger fares beginning May 1, but only in the case of a minimum distance of 106 tariff kilometers (about 66 miles) third class, 112 tariff kilometers (about 70 miles) second class, and 115 tariff kilometers (about 71½ miles) first class, or in the case of round-trip tickets for twice these distances. In no case will the reductions exceed 20 per cent. According to the Federal Railway statisticians, unless passenger traffic increases the loss entailed by these reductions will be 5,000,000 francs (approximately $965,000 at the normal rate of exchange).

As regards general season tickets, these are to be reduced by 10 per cent. The following will be the rates for a general season ticket available for one year after May 1, next:

WITHOUT SUPPLEMENT ALLOWING THE HOLDER TO TRAVEL BY EXPRESS TRAINS

First class	1,920 francs (about $370 at par)
Second class	1,440 francs (about $275 at par)
Third class	960 francs (about $185 at par)

WITH SUPPLEMENT ALLOWING THE HOLDER TO TRAVEL BY EXPRESS TRAINS

First class	2,280 francs (about $443 at par)
Second class	1,720 francs (about $334 at par)
Third class	1,140 francs (about $220 at par)

How much higher these rates are than those of 1913 may be judged from the following:

COST OF 1913 GENERAL SEASON TICKET FOR ONE YEAR

First class	750 francs (about $145 at normal rate of exchange)
Second class	525 francs (about $102 at normal rate of exchange)
Third class	375 francs (about $72 at normal rate of exchange)

These 1913 tickets allowed the holder to travel by any train he chose, for it was before the day of express train supplements. In 1913, also, a general season ticket could be and very often was bought in any class for 15 days, 30 days and 45 days, as well as of course three, six or twelve months at proportionate rates.

It is not yet certain whether after May 1 next, general season tickets for 30 days will be reintroduced, but if it should be decided to allow them, they will cost not less than half as much as a three months' general season ticket costs, that is, one will cost about 243 francs whereas in 1913 the cost was only 70 francs.

Apparently the Federal Railways are too nervous to really ever take any initiative. In 1913, the Swiss railways in general, not the federal lines alone, derived 40 per cent of their traffic receipts from passenger traffic, but in 1919, the last

year for which complete figures are available, they derived only 28.6 per cent from this source, and all railways earned far more from their third class passengers than from their first and second put together. The following classifies by percentages, the importance of the various classes for the year 1919:

First class	2.5 per cent
Second class	16.6 per cent
Third class	80.9 per cent

In reality, however, nothing at all is earned from first class passenger traffic, for the rates do not cover the cost of the first class service. The following figures give the percentage of passengers traveling in the different classes for the years 1913 and 1919:

	1913	1919
First class	.6 per cent	.2 per cent
Second class	6.8 per cent	4.1 per cent
Third class	92.6 per cent	95.7 per cent

The percentage of first and second class passengers has not increased since the year 1919.

What is astonishing is that the Swiss Federal Railways, which are supposed to be for the Swiss people, do almost everything which the Swiss people do not want. Bureaucracy is not only injuring the finance of the Swiss State Railways, but doing much to ruin the country's tourist traffic on which Switzerland is more dependent than any other country in the world.

The tourist who used to come to Switzerland before the war and buy a 15-, 30- or 45-day general season ticket used to stay in perhaps 25 or 30 different places, and naturally spend money in all of them. Now, however, if any one does come, he usually settles down in one place and stays there until he has to leave, returning by the same route as he came. Anyone with a season ticket who found the weather bad in one part of Switzerland used to leave for another part where weather conditions might very well be quite good, and the visitor did not return home complaining that he had had bad weather all the time. Bureaucracy, however, does not perceive what is to the interest of the nation as a whole, but only thinks of its own musty files and of getting out lists of figures often too late to be of much value. Only gradually can it be realized what a curse state railway management is to a country. On the other hand, the state votes so many million francs for advertising the country as a tourist resort and on the other hand it does all it can to kill the tourist traffic. It is not merely putting barriers in the way of foreign tourists, but actually preventing the Swiss themselves from traveling about their own country. For instance, the supplement now charged in Switzerland for express trains is thoroughly unreasonable in view of the shortness of the distance between the stops, even in the case of the fastest trains. Moreover, the fastest train in Switzerland hardly ever goes more than forty miles an hour. The people grumble and the bureaucrats smile.

S. M. Vauclain on European Conditions

S. M. Vauclain, president of the Baldwin Locomotive Works, in an interview with representatives of the daily press, has given out some impressions of his recent trip through Central Europe.

Aided by a strategic position, between Germany and Russia, Germany's manufactured goods flow in unceasing tides across Poland, and needy Russia is continually buying both from Germany and Poland in enormous quantities, he said. In Germany he visited the Krupp works at Essen and saw their locomotive shops. There, he said, the work is being pursued day and night. There are enough orders ahead to keep the works at full speed for 12 or 14 months.

Russia has ordered 1,000 locomotives from Sweden, Mr. Vauclain said. The Swedish builders are doing all in their power to bring production up to one locomotive each day, and in this effort they are having the aid of Russia. It is very likely that they will be able to meet the demand. He said that in his opinion Poland is destined to arrive at a stage of prosperity earlier than any of the other nations of the New East.

It is understood that Mr. Vauclain made arrangements to supply Poland with locomotives in exchange for lumber which he proposes to dispose of in France.

Equipment and Supplies

Locomotives

THE LEHIGH & NEW ENGLAND is inquiring for 2-8-0 type locomotives.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE is inquiring for 20 locomotives.

THE AKRON, CANTON & YOUNGSTOWN is inquiring for 5 Consolidation type locomotives.

THE TOLEDO, ST. LOUIS & WESTERN has ordered 5 additional Consolidation type locomotives from the Lima Locomotive Works, Inc.

THE CHICAGO, BURLINGTON & QUINCY, reported in the *Railway Age* of January 28, as inquiring for 55 locomotives, has ordered 47 Mikado, Sante Fe and Pacific type locomotives from the Baldwin Locomotive Works and 8 Mountain type from the Lima Locomotive Works.

Freight Cars

THE ATLANTIC COAST LINE is inquiring for 100 phosphate cars.

THE FRUIT GROWERS EXPRESS is building 100 refrigerator cars in its shops at Alexandria, Va.

THE CHICAGO, BURLINGTON & QUINCY, reported in the *Railway Age* of February 11, (page 399) as inquiring for 500 automobile cars, has ordered this equipment from the Pullman Company.

THE PACIFIC FRUIT EXPRESS has ordered 700 refrigerator cars from the General American Car Company. This is in addition to the cars ordered by the same company last week and reported in our issue of February 25.

Passenger Cars

THE CENTRAL OF NEW JERSEY reported in the *Railway Age* of February 25, as having placed orders for 45 cars for passenger service has placed orders for a total of 70 cars as follows: 20 coaches and 10 combination passenger and baggage cars to the American Car & Foundry Co., 30 coaches to the Standard Steel Car Company and 10 baggage cars to the Bethlehem Shipbuilding Corporation, Harlan Plant.

Iron and Steel

THE CHESAPEAKE & OHIO is asking for 150 tons of steel for a bridge.

THE LEHIGH & NEW ENGLAND is inquiring for 400 tons of fabricated steel for seven bridges on its lines.

THE DELAWARE, LACKAWANNA & WESTERN is asking for prices on 500 tons of fabricated steel for various bridges on its line.

THE BALTIMORE & OHIO has ordered fabricated steel for a bridge from the Mt. Vernon Bridge Company and for another bridge from the Fort Pitt Bridge Company; both structures call for a total of about 550 tons.

Signaling

CHICAGO UNION STATION.—This company will receive bids until March 20, for the construction and installation of two large interlocking plants at the north and south approaches to the union station. Bids have just been received for the installation of a pneumatic tube system and bids for 10,000 duct feet of six-way conduits are being received at the present time.

Supply Trade News

The Wood Shovel & Tool Company, Piqua, Ohio, has appointed the **Maintenance Equipment Company,** Chicago, its agent to handle the distribution of its shovels to the railroads.

Ross F. Hayes, whose appointment as general sales manager of the **Curtain Supply Company,** Chicago, was noted in the *Railway Age* of February 18 (page 452), was born at Lewiston, Me. He entered business with the Boston Woven Hose & Rubber Company in 1888, and was in the service of that company for 16 years, during which time he served as salesman in the rubber goods department in New England and New York state and in 1893 was transferred as city sales manager to St. Louis, Mo. After two years service at that point, he was appointed New England representative of the mechanical rubber goods department and two years later manager of the Philadelphia office, where he remained until 1904. During the latter year he entered the service of the Curtain Supply Company as western representative and since 1907 has served as eastern sales manager with headquarters at New York.

R. F. Hayes

Geo. W. Bender, whose appointment as vice-president of the **Argyle Railway Supply Company,** Chicago, was noted in the *Railway Age* of February 18 (page 452), was born at Pittsburgh, Pa., on August 20, 1884. Seventeen years later he entered the engineering department of the Pressed Steel Car Company, at Pittsburgh. In 1906 he entered the service of the American Locomotive Company, where he had charge of the extra work order department. He became associated with Mudge & Co., in 1910, as chief draftsman, and subsequently was placed in charge of the mechanical department. Later he was promoted to assistant to the vice-president and in April, 1918, was appointed eastern manager in the New England and Atlantic Coast states. In September, 1919, he was appointed manager of sales and service, with headquarters at Chicago, the position he occupied at the time he entered the service of the Argyle Railway Supply Company.

G. W. Bender

John D. Ristine, manager of sales of the Chicago Crucible Company, has been appointed manager of sales of the railroad division of the **Service Motor Truck Company,** Wabash, Ind. Mr. Ristine has been with the Chicago Crucible Company for the past two years. Previous to that time he served as assistant to G. B. Robins, vice-president of Armour & Co., before which he was engaged in railway supply work, having been at one time secretary of the Union Draft Gear Company.

The United States Cast Iron Pipe & Foundry Company, Burlington, N. J., has opened a new office in the Interstate building, Kansas City, Mo., in charge of **D. W. Pratt,** sales agent.

The United Alloy Steel Corporation, Canton, Ohio, announces that **John McConnell,** who was formerly in the service of the corporation has again entered its service as vice president, in charge of operation.

The **O'Fallon Railroad Supply Company,** Arcade building, St. Louis, Mo., has been appointed sales agent for the Standard Railway Equipment Company, the Pressed Steel Manufacturing Company, the Imperial Appliance Company and the Union Metal Products Company for the St. Louis district.

Exum M. Haas, formerly manager of the railroad department of the Austin Company and more recently the H. K. Ferguson Company, both of Cleveland, Ohio, and western editor of the Electric Railway Journal from 1911 to 1916, has entered the service of the **Simmen Automatic Railway Signal Company,** Eden, N. Y., in an executive capacity.

Morris A. Zook, formerly resident engineer, Bureau of Valuation, Interstate Commerce Commission, has recently opened offices as a consulting engineer at Plainfield, N. J. He will specialize in examinations, estimates and reports and all matters in connection with the valuation of common carriers. Mr. Zook was educated at the Polytechnic College of Pennsylvania. Prior to his connection with the Interstate Commerce Commission, Mr. Zook served as resident engineer and division engineer on the Norfolk & Western; assistant engineer and engineer on the Pennsylvania, Lines West; the Chicago, Indianapolis & Louisville as engineer maintenance of way and superintendent; and various other railways and other industries in the capacities of special and consulting engineer.

The Meadville Machinery Company, Incorporated, Meadville, Pa., has been organized. **William Schlafge,** mechanical manager of the Erie at New York has been elected president of the new company, **Charles James,** who was mechanical superintendent on the Ohio Region of the Erie at Youngstown, is vice-president and **W. A. Cotton,** of the office of the mechanical manager, is secretary and treasurer. The general offices will be at 50 Church street, New York City. The company was organized to operate the locomotive and car shops of the Erie at the following points: Stroudsburg, Pa., Dunmore, Pa., Avon, N. Y., Meadville, Pa., Galion, Ohio, and Dayton, Ohio; car shops only at Elmira, N. Y., and Marion, Ohio, and locomotive shops only at Cleveland, Ohio; Huntington, Ind., and Hammond, Ind.

American Locomotive Company

The net earnings of the American Locomotive Company for the year ended December 31, 1921, were $5,083,785, as compared with $7,111,126 for 1920. After the payment of dividends on both common and preferred stock and setting aside a reserve of $1,000,000 for additions and betterments, there remained a surplus of $833,785, as against a surplus of $1,861,126 for the previous year. Gross earnings amounted to $35,711,507, as compared with $66,884,613 for 1920.

The balance sheet of the company as of December 31, 1921, shows an excess of current assets over current liabilities of $41,725,992, after including in current liabilities a reserve of $1,244,940 for income and profit taxes. The company on this date had no bills payable. The inventory account on December 31, 1921, was $4,751,901, as compared with $15,119,342 at the close of 1920.

President Andrew Fletcher in the annual report says in part:

The gross earnings for the year in comparison with the year ending December 31, 1920, show a reduction of about 46 per

cent. The volume of domestic business was very materially reduced, due to the general depression of business throughout the country. A larger amount of foreign business could have been obtained during the year 1921, but in a number of cases the requested length of time of the deferred credit payments and the securities offered for the protection of the payments were not considered conservative business risks for the company to assume.

During the calendar year there was expended for additions and betterments to the plants $1,446,109, which has been charged to the reserves created for such purposes.

No construction work was done during the year on the proposed new plant in the St. Louis district and it is the present intention of the company to withhold active development of the property until the general business requirements of the company warrant it.

The unfilled orders for new locomotives, reconditioning of old locomotives and miscellaneous work on December 31, 1921, amounted to $3,344,300, of which approximately 96 per cent is domestic business and 4 per cent foreign business.

It is difficult to forecast the volume of business of this company for the year 1922. The federal investigation of railroad transportation matters of the country is still continuing and progress is being made. The recent representations to the Interstate Commerce Commission, made by some of the ablest and most experienced railroad chief executives and by the Honorable Secretary of Commerce of the present conditions of the railroads are most impressive and convincing and prove that there was practically no inflation in the railroad transportation business during the war, and that, therefore, there is a much less margin and opportunity for deflation now; that the effective equipment of cars and locomotives of the railroads has not kept pace the past few years with the natural growth and development of the country.

CONDENSED INCOME ACCOUNT OF THE AMERICAN LOCOMOTIVE COMPANY, MONTREAL LOCOMOTIVE WORKS, LIMITED, AND AMERICAN LOCOMOTIVE SALES CORPORATION—COMBINED

	12 months ended Dec. 31, 1921	12 months ended Dec. 31, 1920
Gross earnings	$35,711,507.47	$66,884,613.18
Manufacturing, maintenance and administrative expenses and depreciation	30,106,478.80	58,043,172.51
Gross profit	$5,605,028.67	$8,841,440.67
Interest on bonds of constituent companies, etc.	86,243.10	94,300.77
	$5,518,785.57	$8,747,139.90
Deduct for United States and Canadian income and profits taxes	435,000.00	1,636,013.60
Available profit	$5,083,785.57	$7,111,126.30
Dividend on preferred stock at 7 per cent	1,750,000.00	1,750,000.00
Dividend on common stock at 6 per cent	1,500,000.00	1,500,000.00
	$1,833,785.57	$3,861,126.30
Reserve for additions and betterments	1,000,000.00	2,000,000.00
Net credit to Surplus account	$833,785.57	$1,861,126.30

Railway Steel-Spring Company

The annual report of the Railway Steel-Spring Company for the year ended December 31, 1921, shows net earnings amounting to $1,551,636, as compared with $4,435,350 in 1920. Dividends of 7 per cent on the preferred stock and 8 per cent on the common totaling $2,025,000, were paid in both years. The surplus on December 31, 1921, was $12,468,990.

President F. F. Fitzpatrick in his remarks to the stockholders says:

"During the latter part of the year the plants of your Company were operated at only 35 per cent of capacity. The railroads have purchased only very moderate quantities of new equipment and supplies during the past few years, and it is therefore expected that their purchases through 1922 will be considerably increased.

"The operations of the Canadian Steel-Tire & Wheel Company, Limited, were satisfactory. By the establishment of this plant at Montreal, we have been able to render very efficient service to our Canadian customers."

Trade Publications

TRADE STANDARDS IN THE PUMP INDUSTRY.—The Hydraulic Society, New York, has recently published a 20-page booklet on trade standards in the pump industry. The test explains what is meant by trade pumps, plain fitted or brass fitted pumps, what is considered standard equipment and what are considered as extras. Typical sizes of trade pumps are shown as well as definitions of terms used in the industry. The subject matter is intended as a guide and represents what the society and its members think is good practice.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company, which was noted in the *Railway Age* of January 28 (page 303), as having closed bids on January 25, for the construction of extensions and improvements to its machine shops at San Bernardino, Cal., the work to include a one-story building 65 ft. by 510 ft., equipped with machinery and cranes, of which the entire cost is estimated at $250,000, has awarded the contract for this work to C. A. Fellows, Los Angeles, Cal. This same company has awarded a contract to the Hayes-Oser Company, San Francisco, for the construction of a reinforced concrete icing plant at Riverbank, Cal., 84 ft. by 134 ft. The plant will have a daily capacity of 150 tons, with 10,000 tons storage space.

ATCHISON, TOPEKA & SANTA FE.—This company, which was noted in the *Railway Age* of February 11 (page 401), as contemplating the construction of 75 miles of second track between Yampai, Ariz., and Griffith, including the reduction of a grade, has awarded the contract for this work to the Sharp-Fellows Contracting Company, Los Angeles, Cal. A new refrigerating plant estimated to cost approximately $40,000, for use in its El Tavor Hotel, Grand Canyon, Ariz., is also contemplated.

CHICAGO & WESTERN INDIANA.—This company closed bids on February 28, for the remodeling of its passenger station at 63rd and Wallace streets, Chicago.

CHICAGO, BURLINGTON & QUINCY.—This company contemplates the construction of a new electric power house at Aurora, Ill., estimated to cost $100,000.

CHICAGO GREAT WESTERN.—This company, which was noted in the *Railway Age* of February 18 (page 453), as accepting bids for the construction of a two-story frame office building at St. Paul, Minn., has awarded the contract for this work to John Jacobson, Marshalltown, Iowa.

GULF PORTS TERMINAL.—This company will complete the construction of an extension to its line from Muskogee, Fla., to Mobile, Ala., there being a remaining distance of 18 miles, giving the railroad a complete line from Pensacola, Fla., through to Mobile. The sum of $300,000 from the $500,000 recently raised by a bond issue will be spent for this work, other construction and additional equipment.

ILLINOIS CENTRAL.—This company, which was noted in the *Railway Age* of February 4 (page 353), as preparing plans for the construction of a third track from Matteson, Ill., to North Junction, a distance of about 10 miles, and from Tucker to Kankakee, a distance of approximately 5 miles, including a considerable amount of grade reduction work, will accept bids for the same until March 6. This same company is also accepting bids for the installation of a 2 pipe steam vacuum heating system for its freight house at Baton Rouge, La.

ILLINOIS CENTRAL.—This company which was noted in the *Railway Age* of February 18 (page 453), as planning to construct a freight and passenger station at Baton Rouge, La., will accept bids for the same until March 9.

ILLINOIS CENTRAL.—This company, which was noted in the *Railway Age* of February 23, as planning the installation of six miles of 10 and 12-inch pipe lines extending from the city water main in Centralia, Ill., to the company's yards, estimated to cost $75,000, has awarded a contract for this work to Joseph E. Nelson & Sons, Chicago.

LOUISIANA RAILWAY & NAVIGATION.—This company, which was noted in the *Railway Age* of February 25 (page 502), as having petitioned the commission council of New Orleans, La., for permission to construct a passenger station at South Rampart and Girod streets in that city, estimated to cost $125,000, has received a franchise for this work. It is expected that bids will be accepted at once.

MINGO VALLEY.—The Interstate Commerce Commission has issued a certificate authorizing the construction of the first 3½

miles of a line from a point on the Monongahela river near the mouth of Mingo Creek, Pa., to a connection with the Montour railroad, 18.2 miles.

MISSOURI, KANSAS & TEXAS.—This company, which was noted in the *Railway Age* of February 4 (page 353), as preparing to construct a brick and stucco passenger station, with a Spanish tile roof, and a 500 ft. platform, at Highland Park (Dallas), Tex., estimated to cost $17,000, has awarded the contract for this work to Hickey & Montgomery, Dallas.

MISSOURI PACIFIC.—This company which was noted in the *Railway Age* of February 18 (page 453), as receiving bids for the construction of a one-story station building at Winnsboro, La., estimated to cost $10,000, has awarded the contract for this work to T. S. Leake & Co., Chicago.

MONTREAL WAREHOUSING COMPANY.—This company, which operates grain elevators for the Grand Trunk at Montreal, will shortly ask for bids for the construction of an addition to its storage elevators to take care of 1,000,000 bushels of grain; also for a car dumping plant and an additional conveyor for loading grain into ocean vessels.

PENNSYLVANIA.—This company has under way the demolition of the umbrella train-shed which covers all tracks at its Exchange Place Terminal, Jersey City. Platform shelters will be erected. The total cost of the work, for which the Triest Contracting Corporation, New York, has the contract, will be about $300,000. The company has also awarded a contract to the McLean Contracting Company, Baltimore, for the construction of a ferry slip at Market street, Philadelphia, and to the Arthur McMullen Company, New York, for a similar structure at Camden, N. J. Upon the completion of these slips the company will place two new ferry boats in service between Philadelphia and Camden. The slips and boats will cost in excess of $500,000.

TENNESSEE CENTRAL.—This company contemplates the construction of three small steel bridges, the entire cost of which is estimated at $46,000; two coaling stations with cinder pits; and two small station buildings. An application for a loan to cover the above, and a number of additional improvements has been made to the Interstate Commerce Commission.

TEXAS & PACIFIC.—This company is constructing a three-story building at Marshall, Tex., to be used by its apprentices for their instruction and study of car and locomotive work.

TEXAS & PACIFIC.—This company contemplates the enlarging of the terminal facilities of its Trans-Mississippi Terminal at New Orleans, La. No definite decision has been made as to when this work will be undertaken.

WABASH.—This company has been directed by the Missouri Public Service Commission to construct a new freight station at Kirksville, Mo., and also to remodel its present passenger station, and to lay several tracks, all of which has been estimated to cost $44,000

LANDSLIDES in Cajon pass, Cal., and heavy snowslips in the vicinity of Dillon, Colo., on February 22, caused a suspension of train operation on both the Atchison, Topeka & Santa Fe and the Colorado & Southern.

CRIMINAL NEGLIGENCE. A jury, of which two women were members, has returned a verdict of criminal negligence against the engineer and conductor involved in the collision at Woodmont, Pa., in December. The government's investigation made it clear that to inflict any punishment on these two men would be grossly unjust. They were mainly responsible for the wreck but the operation of trains under the manual block system was absolutely chaotic. Negligence and laxity existed all along the line and no jury would be competent to fix responsibility in a case of such technical complexity, if, indeed, there was criminal negligence any where. * * * Trials of this kind are usually unsatisfactory, convictions are seldom obtained. The negligence which causes railroad wrecks, even where responsibility can be fixed is not often deliberate or even criminally careless.

Unfortunately the American public is disposed to tolerate all kinds of laxity when things go well but demands a scapegoat when something suddenly goes ill.—*Springfield (Mass.) Republican.*

Railway Financial News

ALABAMA, FLORIDA & GULF.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $100,000 for eight years.

CARROLLTON & WORTHVILLE.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $8,000 for five years.

CHICAGO, MILWAUKEE & ST. PAUL.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $10,000,000 from the revolving fund for 15 years to pay off a note for a like amount to the United States maturing January 1, 1923. The loan of $10,000,000 was made on June 30, 1920, maturing in 1924. The company has already received a loan of $25,000,000 payable March 1, 1927.

CHICAGO, PEORIA & ST. LOUIS.—*Asks Government Loan.*—The receivers have applied to the Interstate Commerce Commission for a loan of $1,000,000 from the revolving fund for 10 years.

CISCO & NORTHEASTERN.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $148,600 for nine years for the purpose of making improvements to its property including new shop buildings and machinery.

DENVER & RIO GRANDE.—*New Bondholders' Committee.*—The formation of a new and independent bondholders' committee will be undertaken on March 3 at the Hotel Savoy, according to a notice sent out by the stockholders' protective committee of the Denver & Rio Grande. The notice was addressed to the holders of first and refunding 5 per cent bonds and to the holders of 7 per cent. cumulative adjustment mortgage bonds, or to the holders of certificates of deposit issued against the same. The notice read:

"Among other important matters affecting the value of your securities, the facts bearing upon the methods pursued by the Western Pacific interests in getting possession of $20,000,000 worth of cash and bonds and $100,000,000 worth of stock of the Utah Fuel Company belonging to the Denver & Rio Grande will be fully presented for your consideration."

DENVER & SALT LAKE.—*Asks Government Loan.*—The receivers have applied to the Interstate Commerce Commission for a loan of $6,500,000 from the revolving fund for 15 years to assist the company in building the long projected tunnel through James Peak and to complete the line to its projected terminus at Salt Lake City.

GREEN BAY & WESTERN.—*Dividends.*—This company has declared annual dividends of 5 per cent on its capital stock, 5 per cent on the class "A" debentures and ½ of 1 per cent on the class "B" debentures payable on and after February 27. Dividend on the stock is payable to stockholders of record February 25. Last year an annual distribution of ⅛ of 1 per cent was made on the class "B" debentures.

GULF, MOBILE & NORTHERN.—*Government Loan Approved.*—The Interstate Commerce Commission has approved a loan to this company of $918,500 for 10 years to assist the company in meeting maturing indebtedness and providing certain additions and betterments.

ILLINOIS CENTRAL.—*Equipment Trusts Authorized.*—This company has been authorized by the Interstate Commerce Commission to assume obligation or liability in respect of $3,225,000 of equipment trust certificates.

LEAVENWORTH & TOPEKA.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $100,000.

LEHIGH VALLEY.—*Authorized to Abandon Line.*—The Interstate Commerce Commission has issued a certificate authorizing the abandonment of a branch line extending from Ganoga Lake to Ricketts, Pa., 3.83 miles.

MAINE CENTRAL.—*Asks Authority to Issue Bonds.*—This company has been authorized by the Interstate Commerce Commisssion to issue $331,000 of first and refunding mortgage 6 per cent gold bonds, of which $300,000 is to be pledged as collateral security for a demand note to be issued to the director general of railroads and any of the balance to be pledged in connection with the funding of indebtedness to the United States for additions and betterments made during federal control.

MANTON, ALMA & SOUTHBOUND.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $84,290 for five years to enable it to purchase rails.

MINNEAPOLIS & ST. LOUIS.—*New Directors.*—M. A. Taylor and M. L. Bell have been elected directors to succeed H. E. Huntington and E. V. R. Thayer.

MISSOURI, KANSAS & TEXAS.—*Chairman.*—Henry Ruhlender has been elected chairman of the board.

NEW YORK CENTRAL.—*Acquisition.*—The Interstate Commerce Commission has issued a revision of the tentative report recommending approval of the acquisition by the New York Central of control of the Chicago River & Indiana and the Chicago Junction, which contains additional conditions, that the companies shall signify their acceptance of the order and of the conditions contained by written agreement and that if any part of the commission's order shall for any reason be adjudged to be invalid, the entire order and the authorizations shall be void, it being the intent of the order and authorization that it shall be effective only in the event that all the conditions and parts of the order and report shall be effective.

PITTSBURGH, SHAWMUT & NORTHERN.—*Earnings.*—The following figures show this company's operating results in December, 1921, and for the 12 months ending with December, 1921:

	December	12 Months
Average mileage operated during period	210	210
Operating revenues:		
Freight	$78,845	$1,059,708
Passenger	8,800	86,326
Total (inc. misc.)	110,179	1,195,797
Operating expenses:		
Maintenance of way and structures	$40,550	$353,838
Maintenance of equipment	228,135	671,692
Traffic	1,424	17,782
Transportation	41,422	535,554
General	5,899	87,554
Total	317,433	1,666,485
Operating ratio	288.1	139.4
Net from railway operations	def. $207,254	def. $470,688
Operating income (or loss)	def. 210,780	def. 498,953
Net after rentals	def. 210,214	def. 379,465
Net after rentals 1920	def. 36,889	def. 87,202

RICHMOND TERMINAL.—*Authorized to Issue Bonds.*—This company has been authorized by the Interstate Commerce Commission to issue $3,380,000 of first mortgage, 30-year, 5 per cent. gold bonds, to be guaranteed by the Richmond, Fredericksburg & Potomac and the Atlantic Coast Line and to be sold at not less than 92.75. The proceeds are to be used to refund certain promissory notes.

SALINA NORTHERN.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $308,630 for 10 years to enable it to retire indebtedness and purchase equipment and make other improvements.

TENNESSEE CENTRAL.—*Asks Authority to Issue Securities.*—This company has applied to the Interstate Commerce Commission for authority to issue $3,000,000 of common stock and $3,000,000 of first mortgage 25-year 6 per cent bonds. The proceeds are to be used to pay for the property of the railroad taken over following the reorganization, $1,500,000, and the balance for additions and betterments and purchase of equipment. The application states that it is proposed to sell the securities at 33⅓ cents on the dollar, that is, each purchaser of bonds is to receive in addition stock to the amount of twice the amount of the bonds in par value to the extent of $1,500,000 of bonds. The balance of the bonds is to be deposited with the government as security for a loan of like amount which has been applied for or to be held in the treasury in case the loan is not allowed.

UNION PACIFIC.—*Asks Authority for Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to assume obligation and liability with respect to $6,800,000 of 5 per cent. equipment trust certificates, which have been sold to Kuhn, Loeb & Co., at 95, for the acquisition of 4,545 cars at a total cost of $9,122,800.

VICKSBURG, SHREVEPORT & PACIFIC.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $408,966 for 15 years to assist the company in rebuilding freight cars and making certain other improvements.

WABASH, CHESTER & WESTERN.—*Application for Loan Denied.*—The Interstate Commerce Commission has denied this company's application for a loan of $500,000.

WHEELING & LAKE ERIE.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $600,000 for 10 years to enable it to meet maturing indebtedness.

Railroad Administration Settlements

The United States Railroad Administration reports the following final settlements, and has paid out to the several roads the following amounts:

Wheeling & Lake Erie	$440,000
San Antonio, Uvalde & Gulf	210,000
Western Heater Dispatch	50,000
Hamilton Belt	20,000
Camas Prairie	220,000
Norfolk Terminal	4,575
Salt Lake City Union Depot & Railroad Co.	1,360
Lorain & West Virginia paid Director-General	25,000
Sainte Marie Union Depot Co. paid Director-General	2,852
SHORT LINES	
White Sulphur & Huntersville	3,500
Tavares & Gulf	8,500

The payment of these claims on final settlement is largely made up of balance of compensation due, but includes all other disputed items as between the railroad companies and the administration during the 26 months of federal control.

Dividends Declared

Beech Creek—$0.50, quarterly, payable April 1 to holders of record March 15.

Boston & Albany—$2.00, quarterly, payable March 31 to holders of record February 28.

Buffalo & Susquehanna—Common, 1¾ per cent, quarterly, payable March 31 to holders of record March 15.

Fonda, Johnstown & Gloversville—Preferred, 1½ per cent, quarterly, payable March 15, to holders of record March 10.

Pittsburgh, Ft. Wayne & Chicago—Common, 1¾ per cent, quarterly, payable April 1 to holders of record March 10; preferred 1¾ per cent, quarterly, payable April 4 to holders of record March 10.

St. Louis, Rocky Mt. & Pacific—Common, 1 per cent quarterly; preferred, 1¼ per cent, quarterly; both payable March 31 to holders of record March 19.

Trend of Railway Stock and Bond Prices

	Feb. 28	Last week	Last year
Average price of 20 representative railway stocks, close of business	60.28	59.51	54.34
Average price of 20 representative railway bonds, close of business	82.57	82.18	74.55

SCHOLARSHIPS IN TORONTO UNIVERSITY are offered, subject to competitive examination, by the Canadian Pacific Railway Company, to apprentices and other employees enrolled on the permanent staff of the company, under 21 years of age, and to minor children of employees. Scholarships are also granted covering four years' tuition in engineering, etc., in McGill University.

THE UNIFORM BILL OF LADING, new form, is to be put in use on March 15. J. C. Lincoln, manager of the traffic bureau of the Merchants' Association, New York City, reminds shippers that all claims should be presented within six months (or nine months) after the delivery of the property to the carrier. The nine months' period refers to export goods. Another change made in the new bills permits that where loss, damage or injury was due to delay or occurred during loading or in transit by carelessness or negligence, then no notice of claim nor filing of claim will be required as a condition precedent to recovery. The limitation of liability for loss or damage to property transported in open cars, which was formerly provided for, has been eliminated.

Railway Officers

Executive

W. A. Webb has been elected president of the Cambria & Indiana, with headquarters at Philadelphia and Colver, Pa.

S. L. Vaughan, traffic manager of the Grand Rapids, Grand Haven & Muskegon, with headquarters at Grand Rapids, Mich., has been elected vice-president of that road with the same headquarters.

Financial, Legal and Accounting

M. T. Countryman, general solicitor of the Great Northern, with headquarters at St. Paul, Minnesota, has been promoted to general counsel with the same headquarters, succeeding E. C. Lindley, resigned.

Mrs. Helen M. Handy has been elected secretary of the Detroit, Bay City & Western, the Port Huron & Detroit, and the Port Huron Southern, with headquarters at Bay City, Mich., succeeding F. S. Handy, deceased. **Leo C. Van Laan,** auditor, with headquarters at Bay City, has been elected assistant secretary with the same headquarters.

Charlton Messick, whose election as treasurer and assistant secretary of the St. Louis Southwestern, with headquarters at St. Louis, Mo., was announced in the *Railway Age* of February 25 (page 504), was born on August 22, 1870, at Louisville, Ky. He entered railroad service in November, 1888, as a clerk in the accounting department of the St. Louis Southwestern (at the time the St. Louis, Arkansas & Texas). After holding various clerical positions in that department, he was promoted on August 1, 1893, to chief clerk of passenger accounts, which position he held until July 1, 1900, when he was promoted to chief clerk of freight and ticket accounts. Mr. Messick was made assistant general auditor on May 1, 1904, and federal treasurer on August 15, 1918. He resumed his duties as assistant general auditor on March 1, 1920, which position he was holding at the time of his recent promotion.

C. Messick

Operating

George Bradshaw, supervisor of safety of the Pere Marquette, with headquarters at Detroit, Mich., has resigned to retire from business.

The position of assistant to the general superintendent of the Grand Trunk, Lines West, with headquarters at Chicago, made vacant by the death of **John Ehrke** on February 21, has been abolished.

W. S. Hall, superintendent of the Cranbrook division of the Canadian Pacific, with headquarters at Cranbrook, B. C., has been transferred to the Portage division, with headquarters at Winnipeg, Man., succeeding **T. R. Flett,** who has been transferred to Cranbrook.

H. H. Brown, assistant general manager of the St. Louis-San Francisco, with headquarters at Springfield, Mo., has been appointed superintendent of the Northern Division with headquarters at Fort Scott, Kansas, succeeding **C. H. Claiborne** who has been transferred to the Western division, with headquarters at Enid, Oklahoma, who in turn succeeds **W. H. Bevans,** assigned to other duties.

P. T. White, superintendent of the St. Louis division of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Mattoon, Ill., has been transferred to the Cincinnati-Sandusky division, with headquarters at Springfield, Ohio, succeeding **W. G. Bayley,** deceased. He has been succeeded at Mattoon by **E. F. Hayes,** superintendent of the Cairo division, with headquarters at Mt. Carmel, Ill., and he in turn was succeeded by **H. F. Milligan,** superintendent of terminals, with headquarters at Cincinnati, who was succeeded by **E. M. Kelley,** assistant superintendent of the Cincinnati-Sandusky division, with headquarters at Springfield. The position of assistant superintendent of that division has now been abolished.

Traffic

F. W. Hampson has been appointed commercial agent of the Norfolk & Western, with headquarters at Little Rock, Ark.

L. A. Goodrich has been apppointed acting traffic manager of the Grand Rapids, Grand Haven & Muskegon, with headquarters at Grand Rapids, Mich.

Bert R. Persels has been appointed general agent of the Great Northern, with headquarters at Kansas City, Mo., succeeding **P. E. Meany,** deceased.

L. A. Sackbauer has been appointed traffic manager of the Wabash, Chester & Western, with headquarters at Chicago, succeeding **A. J. Chouinard,** who has resigned to enter other business.

B. S. Merritt, whose appointment as assistant general freight agent of the Great Northern, with headquarters at Seattle, Wash., was announced in the *Railway Age* of February 18 (page 455), was born at Port Huron, Mich., on January 26, 1876. He entered railroad service on April 15, 1895, as an agent and operator on the Pere Marquette, which position he held at various points on the line until October, 1906, when he left to enter the service of the Great Northern as an agent and yardmaster at Williston, N. D. He was promoted to traveling freight agent at St. Paul, in December, 1908, and in 1910, was made station supervisor at Minot, N. D., and later during that year, traveling freight agent at Billings, Mont. From 1911 to 1913, he was traffic agent at Great Falls, Mont., and from the latter year until 1914, he was in charge of the traffic agency at St. Paul, Minn., for both the Great Northern and the Chicago, Burlington & Quincy. He was promoted to general agent of the Great Northern with headquarters at Great Falls, in 1914, which position he held up to the period of federal control when he was made station inspector. On July 1, 1919, he was made general agent, with headquarters at Spokane, Wash., which position he was holding at the time of his recent promotion.

R. D. Williams, whose appointment as traffic manager of the Sacramento Northern, with headquarters at Sacramento, Cal., was announced in the *Railway Age* of February 11 (page 405), was born at Cleveland, Ohio, on April 12, 1881. He entered railroad service on June 1, 1896, as an office boy in the freight claim department of the Erie Despatch at Cleveland. In 1898, when that office was consolidated with the main office at New York, Mr. Williams was transferred to the latter city where he held various clerical positions in that department until 1906, when he was promoted to take charge of the newly created branch freight claim office at Chicago. In 1908 he was transferred to the traffic department as a representative of the general dairy agent. In 1909, he was transferred to Des Moines, Ia., as a traffic agent, and in 1911, he was promoted to general agent, with headquarters at Los Angeles, Cal., which position he held until August 15, 1916, when his jurisdiction was extended over the entire Pacific coast traffic of that road. He was granted a

leave of absence in 1918 in order that he might organize and manage the traffic department for the housing division of the Emergency Fleet Corporation. In April of the following year he returned to the Erie as general agent, with headquarters at New York, which position he held but a short time when he left to become traffic manager of the California Fruit Exchange at Sacramento, leaving this position to accept his present one.

Mechanical

William Schlafge, mechanical manager of the Erie, and **Charles James,** mechanical superintendent of the Ohio region, have resigned (see item under Supply Trade News elsewhere in this issue).

Engineering, Maintenance of Way and Signaling

F. B. Wiegand, signal engineer of the New York Central lines West, with headquarters at Cleveland, Ohio, has been appointed to serve in the additional capacity of consulting engineer of the Cleveland Union Terminal Company.

Purchasing and Stores

Edwin H. Gaines, Jr., whose appointment as purchasing agent of the Tennessee Central, with headquarters at Nashville., Tenn., was announced in the *Railway Age* of February 18 (page 456), was born at Nashville, on November 8, 1887. He entered railway service in September, 1905, as a file clerk in the passenger traffic department of the Nashville, Chattanooga & St. Louis at Nashville, and was successively chief file clerk, secretary to the chief clerk and advertising agent in the above named department of that road until February 1, 1909, when he left to become associated with the Charleston Mining & Manufacturing Company. He entered the service of the Tennessee Central at Nashville in July, 1913, since which time he has been invoice clerk in the receivers' office, secretary to the receivers, secretary and chief clerk to the general superintendent, and chief clerk to the receivers, which latter position he was holding at the time of his recent promotion.

Obituary

John Ehrke, assistant to the general superintendent of the Grand Trunk Lines West, with headquarters at Chicago, died on February 21 while on business at Battle Creek, Michigan.

Robert B. Stanton, formerly a division engineer of the Union Pacific, died at a hospital at Stamford, Conn., on February 23. Mr. Stanton was 76 years of age, and well known for his engineering aid in the construction of the "Georgetown loop" and the surveying of a railroad line through the Grand Canyon.

H. C. Blye, general agent of the Trunk Line Association with headquarters at New York, died at Monticello, N. Y., on February 22. Mr. Blye was born in Philadelphia on August 4, 1843. He enlisted in the navy and was retired in 1871 as a lieutenant-commander. He entered railway service as a union ticket agent in the old Astor House, New York. Then successively, until 1877, he was clerk, car accountant, claim agent and contracting agent for various fast freight lines. He entered the service of the Trunk Line Association at its inception and was soon thereafter appointed its general agent, in which position he served 45 years—up to the time of his death.

Walter Galt Barnwell, assistant freight traffic manager of the Atchison, Topeka & Santa Fe, Coast lines, with headquarters at San Francisco, Cal., died while on business in Chicago on February 28. Mr. Barnwell was born in April, 1865, at Danville, Que. He entered railroad service in 1861 as an agent and clerk in the office of the auditor of freight accounts of the Canada Atlantic (Grand Trunk). He left in 1884 to become an agent in the superintendent's office of the Fergus Falls division of the Great Northern, and he was later promoted to division clerk in the superintendent's office of the Breckenridge division at Breckenridge, Minn., which position he held until 1891, when he left to enter the service of the Southern California (Atchison, Topeka & Santa Fe), as cashier at Redlands, Cal. From the latter date until May, 1898, he was successively agent at Santa Ana, Cal., contracting agent, and commercial agent. He was promoted to general agent of the freight department, with headquarters at Los Angeles, Cal., in May, 1898, and two years later he was made assistant general freight agent of that road, the Santa Fe Pacific, and the San Francisco & San Joaquin Valley, with the same headquarters, those railroads now comprising the Coast Lines of the Atchison, Topeka & Santa Fe. In April, 1905, he was promoted to general freight agent of the Coast Lines, with the same headquarters which position he held until June 1, 1913, when he was made assistant freight traffic manager of the Coast Lines, with headquarters at San Francisco.

John R. Savage, general superintendent of the Long Island, died on February 25 at New York. Mr. Savage was born on April 17, 1869, at Philadelphia. He was graduated from the University of Pennsylvania in 1889 and entered the service of the Pennsylvania Railroad as a rodman and leveler. He left this position the following year to go with the government engineering corps. In May, 1895, he was appointed engineer of the Seattle & Lake Washington Company. Two years later he returned to the Pennsylvania as an assistant engineer. For several months in 1900 he was employed on surveys for a proposed railway from Cornwall to Highspire, Pa. In 1901 he entered the service of a steel company, which position he held until 1904 when he became chief engineer of the Long Island. In 1917 he was appointed general manager. In 1920 when the organization of the property was modified he was appointed general superintendent, which position he was holding at the time of his death.

J. R. Savage

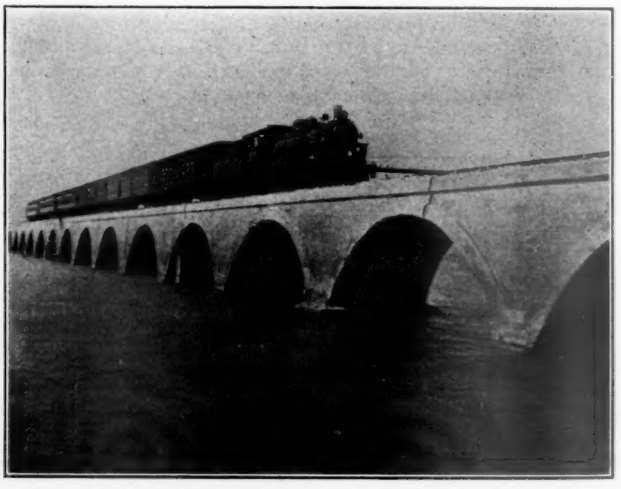


Photo by Underwood & Underwood

On Viaduct South of Long Key, Florida